

Draft General Management Plan and Environmental Impact Statement for

City of Rocks National Reserve

Cassia County, Idaho

Prepared by United States Department of the Interior: National Park Service

City of Rocks National Reserve was established on November 18, 1988 (P.L. 100-696). The 1996 *City of Rocks National Reserve Comprehensive Management Plan* no longer provides adequate guidance to address the management and operational issues now facing the Reserve.

This draft general management plan and environmental impact statement (GMP/EIS) examines four possible management strategies or “alternatives,” including the impacts of implementing these alternatives in the Reserve. These alternatives address visitor use and the preservation of natural and cultural resources to protect and interpret the significance of the Reserve. They comply with National Park Service (NPS) planning requirements and respond to issues identified during the public scoping process. Alternative B is the preferred alternative of the National Park Service and the Idaho Department of Parks and Recreation (IDPR). If approved in a Record of Decision following the release of the final environmental impact statement, the preferred alternative will become the general management plan for the Reserve.

Alternative A: the No Action Alternative would assume that current management, programming, facilities, staffing, and funding would generally continue at their current levels and that existing plans would be implemented.

Alternative B: Silent City of Rocks (preferred alternative) would focus on the spectacular scenery, geology, biological richness, and cultural landscape experienced by past and present visitors. It would emphasize a backcountry-type visitor experience that would allow for self-discovery within a minimally developed western outdoor environment.

Alternative C: A Stage for Stewardship would protect resources through research activities, educational opportunities, and partnerships by emphasizing the national significance of the Reserve. Visitors would be provided opportunities to learn about the history and the natural wonders within the Reserve.

Alternative D: Treasured Landscapes Inspiring Stories would tell the stories of the Reserve through the people who pass through, live, and recreate within it, focusing on the California Trail and ranching heritage. It would emphasize a frontcountry, day-use experience with more formal and structured recreational opportunities and programs.

This document includes a detailed description of the alternatives followed by a description of park resources affected by the alternatives and the projected environmental consequences of the alternatives. Also included in this document are the results of public involvement and consultation with other agencies, organizations, and individuals associated with planning for the Reserve’s future.

Please refer to “How to Use This Document” on the following page to navigate through the chapters. To comment on the document, refer to “How to Comment on This Document.” This draft GMP/EIS has been distributed to agencies, organizations, and individuals for review and comment. The 60-day public comment period will be initiated upon publication in the *Federal Register* of the Environmental Protection Agency’s notice of filing and release of the draft EIS. At that time, the closing date of the 60-day public comment period will be announced.





IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

City of Rocks National Reserve

Box 169

Almo, ID 83312



CIRO GMP Superintendent Letter
Draft GMP/EIS 2015

Dear Citizen,

It is with great pleasure that we share with you the *Draft General Management Plan and Environmental Impact Statement* for City of Rocks National Reserve. When it comes to planning the future of our precious national parks, we should be thorough, methodical, and sure of the long-term decisions that we make. We must by necessity move with care and consideration. This document is the result of five years of public input, research, field assessments, and discussions with stakeholders and our operating partners.

This draft general management plan and environmental impact statement reflects a comprehensive framework for the management of City of Rocks National Reserve. Four alternatives for management are presented, including a continuation of the strategy implemented over the last 20 years. In consideration of the four alternatives, the National Park Service and the Idaho Department of Parks and Recreation have agreed on a preferred alternative.

Now it is your turn to read, consider, and determine if the direction we are headed is where you also want to go. The preferred alternative is conservative and considerate of the values we all share for City of Rocks. This document is a lengthy read, but we have provided an Executive Summary at the beginning for those who prefer a concise overview, while including greater detail in the body of the plan. If you have questions, please do not hesitate to ask them. If you cannot find what you're looking for, send me an email at Wallace_Keck@partner.nps.gov or call me at 208-824-5911.

A 60-day comment period, forthcoming public meetings, and a final writing of the general management plan will follow the release of this draft document. I hope you will take comfort as I do that when the plan is completed, City of Rocks National Reserve will be managed in such a way that future generations will applaud the efforts we made together.

Sincerely,

Wallace F. Keck

City of Rocks National Reserve

DRAFT GENERAL MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

City of Rocks National Reserve

P.O. Box 169

Almo, ID 83312

(208) 824-5911

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How to Use This Document

This Draft General Management Plan and Environmental Impact Statement for City of Rocks National Reserve (GMP/EIS) is presented in six chapters and appendices.

The **Executive Summary** at the beginning of the document is a condensed version of this document.

Chapter 1: Introduction and Background sets the stage for the draft GMP/EIS by describing the Reserve, the planning process, the purpose and need for the plan, and implementation of the plan. It also describes the issues that are addressed in the GMP/EIS, resources and values at stake in the planning process, and the relationship of this GMP/EIS to other plans in the Reserve and region.

Chapter 2: Foundation for Planning and Management includes the foundation document, which describes the Reserve's purpose, significance, interpretive themes, and fundamental resources and values. It also describes the special congressional designations, authorizations, mandates, and legal and policy constraints and guidance.

Chapter 3: Alternatives describes four management alternatives, including the NPS and IDPR preferred alternative. The alternatives represent reasonable sets of management directions consistent with NPS policy and applicable laws and planning requirements. This chapter includes two useful tables: Summary of Alternatives and Summary of Impacts.

Chapter 4: Affected Environment provides detailed information on the Reserve, focusing

on those resources that could be affected by the decisions contained in the individual management alternatives.

Chapter 5: Environmental Consequences describes the impacts of each alternative on affected resources within the Reserve.

Chapter 6: Public Involvement summarizes the public involvement and consultation process that was an integral part of the creation of this draft GMP/EIS.

Appendices provide more detailed information related to the plan, including the full text of the *Rim Development Concept Plan for City of Rocks National Reserve* and the City of Rocks National Reserve Wilderness Eligibility Assessment.

Maps and figures are placed within the text of the applicable chapters. In many cases, actions or other discussions contained in this draft GMP/EIS refer directly to maps and figures. In fact, many actions themselves are map-based. The reader must rely on the text, maps, and figures taken together to fully understand the actions described in this draft GMP/EIS.



How to Comment on This Document

The public comment period for this draft GMP/EIS will extend for 60 days upon publication in the *Federal Register* of the Environmental Protection Agency's notice of filing and release of the draft. The National Park Service and the Idaho Department of Parks and Recreation encourage you to review the document and welcome your comments. During the comment period, comments may be submitted using several methods:

The preference is for readers to submit comments online at the City of Rocks National Reserve GMP/EIS project website at <http://parkplanning.nps.gov/ciro>.

A postage-paid comment form is included in the *City of Rocks National Reserve Draft GMP/EIS Summary Newsletter, Number 4*. You may use this form and attach additional pages as necessary.

In addition, letters may be sent to:

Superintendent,
City of Rocks National Reserve
P.O. Box 169
Almo, ID 83312

Comments may be made in person at one or more of the upcoming public open houses. The specific dates and times for these meetings will be announced in local newspapers, in the draft GMP/EIS newsletter, and on the City of Rocks National Reserve website and the GMP/EIS project website. A limited number of additional paper and digital copies of this report are available from the above mailing address. The full report is available for viewing and downloading at the GMP/EIS project website. This document is also available for viewing at public libraries in Almo, Idaho, and at the Seattle downtown public library in Seattle, Washington.

Your comments and contributions have been a valuable component of this planning process and the planning team looks forward to your additional comments on this draft GMP/EIS.

Please note: Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.



Executive Summary

City of Rocks National Reserve (Reserve) was designated as a unit of the national park system on November 18, 1988, by the Arizona-Idaho Conservation Act of 1988 (Public Law 100-696) and is managed cooperatively by the National Park Service and Idaho Department of Parks and Recreation. The Reserve is located in the Albion Mountains in south-central Idaho and is one of many publicly owned lands within the region.

City of Rocks National Reserve contains unique and diverse resources. The geologic features are world-renowned both for rock climbing and academic study. Vegetation communities include sagebrush steppe, pinyon-juniper woodlands, mountain mahogany woodlands, and higher elevation forest communities of aspen, sub-alpine fir, lodgepole pine, and limber pine. The Reserve's pinyon-juniper forest contains the state champion pinyon pine and is the largest forest of its kind in Idaho. There are at least 498 species of plants, 142 birds, 5 amphibians, 14 reptiles, and 56 mammals documented or expected within the Reserve. Idaho's only known population of cliff chipmunk is found in the Reserve and on adjacent lands. Other fauna of note include mule deer, coyote, bobcat, mountain lion, moose, elk, and bighorn sheep. The bighorn sheep were reintroduced a few miles north, but have been seen in the Reserve.

The Reserve preserves and protects 6.2 miles of the California National Historic Trail, 1.8 miles of the Salt Lake Alternate, and the surrounding cultural landscape, which includes remnant historic trail ruts, more than 350 emigrant signatures on 22 rocks, and portions of the Mormon Battalion Trail and the Kelton-Boise Stage Route.



View of City of Rocks landscape.

The Reserve comprises an area of 14,407 acres. Of that total, approximately 9,680 acres are in federal ownership, 4,087 acres are privately owned, and 640 acres are owned by the State of Idaho. Private land within the Reserve remains

regulated by Cassia County zoning and subdivision ordinances.

Though considered nontraditional uses in most national park units, cattle grazing and hunting still occur within the Reserve. The Shoshone-Bannock Tribes have traditionally used the area for seasonal hunting and pine nut gathering and continue to do so today.

Due to these exceptional resources, a portion of City of Rocks was designated a state park in 1957. The Reserve was designated a national historic landmark in 1964 and a national natural landmark in 1974.

ACCOMPANYING PLANNING DOCUMENTS IN THIS GENERAL MANAGEMENT PLAN

As part of the Reserve's draft general management plan, a development concept plan (DCP) is included for the rim area (the western rim of Circle Creek Basin, known as "the Rim") that addresses a broad spectrum of issues and use conflicts between recreational activities—in particular, day-use activities and overnight camping (Appendix D). The highest concentration of vehicular and recreational use in the Reserve is along the Rim. This development concept plan provides a framework to enhance and improve visitor facilities and the visitor experience in this area.

Another accompanying report in the document is the wilderness eligibility assessment for the Reserve (Appendix C). All lands administered by the National Park Service must be evaluated

for their eligibility for inclusion in the national wilderness preservation system. This assessment concluded that lands within the Reserve boundary fail to meet the requirements necessary to qualify for the congressionally designated national wilderness preservation system. Though Reserve lands do not meet the criteria, the area could contribute to a larger area of potential wilderness if the Sawtooth National Forest were to reconsider its management plan prescription for inventoried roadless areas immediately north of the Reserve.



Replicas of the California Trail wagons.

THE CONTEXT FOR THE PLAN

Planning for the Reserve has taken into consideration its overall location in south central Idaho. The context for these alternatives is affected by activities occurring outside City of Rocks National Reserve. For instance, management activities on adjacent lands managed by the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) affect conditions and use at the Reserve.

In addition to these federally managed lands, state-owned lands also surround the Reserve. These include Castle Rocks State Park (one mile northeast of the Reserve) managed by the Idaho Department of Parks and Recreation, and several Idaho Department of Lands parcels located to the south and southeast of the Reserve boundary. The State of Idaho also owns one section of land in the heart of the Reserve.

ALTERNATIVES

The four management alternatives considered in this draft GMP/EIS present a vision and direction for City of Rocks National Reserve. The alternatives are consistent with the Reserve's purpose, significance, and special mandates as presented in "Chapter 2: Foundation for Planning and Management." The alternatives presented by the planning team propose different ways to manage resources, visitor use, and facilities at the Reserve.

The four alternatives include Alternative A: No Action Alternative (Continued Current Management), Alternative B: Silent City of Rocks (NPS and IDPR preferred alternative), Alternative C: A Stage for Stewardship, and Alternative D: Treasured Landscapes, Inspiring Stories. The four alternatives vary by theme or concept, resource management decisions, desired future conditions, and the application of management zones on the ground.



Emigrant trail ruts can still be seen on the California National Historical Trail.

MANAGEMENT ZONES

Management zoning is the method used by the National Park Service to identify and describe the appropriate variety of resource conditions and visitor experiences to be achieved and maintained in different areas of a park. Zoning is a two-step process. First, appropriate management zones are identified. Then, these zones are allocated to geographic locations throughout the Reserve. Management zones define and spatially apply management goals and objectives for resource management, levels of development, and different types of potential visitors' experiences.

Unlike most national park units that are entirely owned and managed by the National Park Service, approximately a third of the land within the Reserve is in private ownership where local county zoning and regulations prevail. On private land, there would be no public visitation (unless with the landowners' permission) or activities or facilities. Private landowners would continue to be stewards on their own lands with NPS and IDPR assistance. Congress expected the Reserve to be zoned according to use and resource preservation—the enabling legislation for the Reserve called for zoning areas within the Reserve that would be devoted to public use and development; historic and natural preservation; and private use subject to appropriate local ordinances designed to protect the historic rural setting.

The following management zones were created for City of Rocks National Reserve:

The **Visitor Facilities and Access Zone** encompasses a variety of facilities that support the highest visitor capacity within the Reserve and serve as an access point for experiencing the Reserve.

The **Transition Zone** balances recreation with the protection of resources. This zone provides a more geographically dispersed recreational experience, offering scenic vistas and a sense of open, natural character while providing minimal developed comforts.

The **Natural Zone** preserves natural features, natural processes, diversity, and ecological values, and provides for compatible recreational uses.

The **Research Natural Area Zone** preserves outstanding natural features, natural processes, diversity, and ecological values, and provides for nonmanipulative research. Activities in this zone will be restricted to nonmanipulative research, education, and other activities that do not detract from the area's research values, according to NPS policies.

The **Historic Rural Setting Zone** preserves the western rural setting and perpetuates the visual character of historic ranching activities on the landscape.



Rock climbing is one of the most popular visitor activities at the Reserve.



Cattle grazing and roaming.

The **California Trail Zone** preserves and interprets the major landmarks, trail remnants, inscription rocks, and historically significant viewsheds associated with the California National Historic Trail. The alignment of the historic trail through the Reserve is best characterized as a landscape corridor through which wagons, people, and livestock dispersed as the ground plane opened and then converged through geographical constrictions such as river fords, mountain passes, and rock formations.

COMMON TO ALL ALTERNATIVES

Several actions would be common to all alternatives. These actions span areas of resource protection, visitor use, and operations. Some of these actions include:

- Private uses on private lands would continue under the jurisdiction of Cassia County.
- The Reserve would continue to work with adjacent landowners and citizens on issues of mutual concern.
- To better educate hunters and trappers about areas available within the Reserve and to establish sustainable levels of hunting, the Reserve would work with the Idaho Department of Fish and Game.
- Reserve operations (administration and maintenance) would continue to be located at the Castle Rocks State Park Administrative Unit in Almo.
- The Reserve would recommend that Cassia County extend the Historical Preservation Zone to cover the entire Reserve to fully protect its cultural and natural resources.
- Section 36 in the Reserve would continue to be a state-owned parcel within the Reserve.
- The Reserve would encourage Cassia County to support national scenic byway designation of the existing City of Rocks Back Country Byway.
- The national historic landmark and the national natural landmark designations would be updated to encompass other significant features in the Reserve.



View from Indian Grove Overlook (Granite Mountain at left, Smoky Mountain in the center, with a backdrop of the Raft River Mountains).

- The Reserve would continue to allow noncommercial pinyon nut gathering and hunting.

A full list of actions that are common to all alternatives is included in “Chapter 3: Alternatives.”

SUMMARY OF ALTERNATIVES

The development of alternatives for the future of City of Rocks National Reserve is based on the purpose of the Reserve, including protection of the scenic qualities and attributes of the California Trail landscape, maintaining the historic rural setting, and preserving the granite features associated with the national natural landmark through cooperative efforts. These cooperative efforts rely on local citizens, Cassia County, the Idaho Department of Parks and Recreation, and the National Park Service. The alternatives define and present proposed strategies for the protection, preservation, and management of shared values at City of Rocks National Reserve. A full summary of the alternative actions can be located in table 18 in chapter 3.

Alternative A: No Action Alternative (Continue Current Management)

Alternative A is the No Action Alternative and assumes that existing programming, facilities, staffing, and funding would generally continue at their current levels. The primary emphasis of the No Action Alternative would continue to be protection of resources and maintaining existing recreational uses in the Reserve.

Resource Protection

Under alternative A, natural and cultural resource preservation and protection would continue to be a high priority for Reserve management. Programs would focus on the inventory and monitoring of resources working with the NPS Upper Columbia Basin Network (UCBN) and private landowners. The 312-acre Research Natural Area (RNA) would continue to be managed for its nationally designated values.

Grazing

Grazing would continue at an economically viable level for permittees (permit holders) while meeting the long-range objectives to preserve and protect significant resources and scenic quality in the Reserve.

Education and Interpretation

The Reserve would continue to provide interpretive and educational opportunities relating to the various City of Rocks interpretive themes and would continue to work with other organizations that use the Reserve as a place to teach. Reserve staff would continue to conduct a variety of interpretive programs and special events and provide educational materials and activities for visitors and youth, including guest speakers.

Visitor Experience

Alternative A would continue to offer the current level of visitor services. Traditional recreational activities such as hiking, biking, horseback riding, birding, and climbing would continue to be accommodated, and the current trail system would be maintained.

In the short term, the temporary existing visitor center with its administrative and visitor services functions would remain located within the Castle Rocks State Park Administrative Unit in Almo, on state-owned land. In the long-term, the Idaho Department of Parks and Recreation would seek to develop a permanent visitor center on state-leased BLM land near Smoky Mountain as approved in the Reserve's 1996 comprehensive management plan and in the 2006 *Castle Rocks State Park Master Plan (CMP)*.

Smoky Mountain Campground, located outside the Reserve on a state-leased BLM parcel, would continue to serve as the main campground for recreational vehicles, equestrians, and others camping outside the Reserve and would be expanded to include a second camping loop of up to 62 sites, as described in the CMP.

Boundary

There would be no change to the Reserve boundary under alternative A.

Climate Change

In alternative A, the Reserve would continue to interpret and monitor the effects of human-caused climate change in the Northern Basin and Range Province at City of Rocks and work toward increasing fuel and energy efficiency. The Reserve would implement actions outlined in its climate action plan to reduce greenhouse gas emissions (Reserve 2010c). The Reserve would continue to allow and support existing climate change research within the Reserve.

Alternative B: Silent City of Rocks (Preferred Alternative)

Alternative B, the NPS and IDPR preferred alternative, would highlight the spectacular scenic resources, geology, biological richness, and cultural landscape experienced by emigrants and early settlers as well as contemporary visitors. Alternative B would encourage self-directed exploration of the Reserve's western landscape and facilitate individual discovery to evoke a powerful connection to the Reserve and its history.

Resource Protection

Under alternative B natural and cultural resource preservation and protection would continue to be a high priority for management of the Reserve. The Research Natural Area would be reconfigured and expanded to 485 total acres to facilitate research. The Reserve would develop and implement a wildlife monitoring plan to guide ongoing management of populations and habitats and would collaborate with partners to determine the feasibility of reintroducing certain extirpated wildlife. In addition, Reserve staff would conduct a condition assessment and evaluate and monitor features associated with the California Trail corridor to detect changes over time and to diminish impacts.

Grazing

Grazing would continue within the Reserve but would be reduced over time as permittees discontinue requests for permits due to changing business models or abandonment. The presence of cattle on the landscape would continue,

but total head and animal unit month (AUM) would be expected to decrease over time through attrition. Attrition would be initiated by permittees, not Reserve management.

As opportunities arise, grazing allotments could be reorganized to achieve maximum benefits for both natural and cultural resources. As allotments are discontinued, increased protection of the California Trail Zone and Visitor Facilities and Access Zone would be emphasized.

Education and Interpretation

Alternative B would incorporate tribal perspectives and involvement into interpretive programming. Reserve neighbors would be encouraged to participate in interpretation and would be given opportunities to tell their stories about the Reserve.

Visitor Experience

In alternative B, a full-scale replacement visitor center would not be built. Instead, the small existing visitor center would be reconfigured and slightly expanded, if possible, to provide additional space and a better separation of uses and functions, keeping space for retail sales, a small area for viewing the Reserve film, a staffed visitor information desk, restrooms, a small book area, and limited exhibits. This small, century-old house would continue to serve as the main visitor center for the Reserve and Castle Rocks State Park. Because of its condition, a new visitor contact station could be built on state-owned land adjacent to the existing visitor center/headquarters building to supplement the existing building.



Hikers peer into the distance at Indian Grove Overlook.

Alternative B would place emphasis on minimal development, or on the rehabilitation of facilities, which would provide for a lower facility-related energy and carbon footprint. To further reduce carbon emissions, Reserve staff would maximize energy efficiency, conservation, and sustainability associated with any new development.

Emphasis would be on visitor preplanning through the internet and community outreach, as well as on using self-guided exhibits and interpretive materials within the Reserve. There would be less emphasis on staff presence, guided programs, and tours. A new entrance kiosk would be constructed at Smoky Mountain Campground and at Bath Rock to improve orientation for visitors. This alternative would support outreach programs to schools and organizations. New programs would bring more educational opportunities to the area. In the long term, if lands and funding become available, the Reserve could consider building a visitor center as approved in the Reserve's 1996 comprehensive management plan and the 2006 *Castle Rocks State Park Master Plan*.

A new recreational trail would be developed for hiking, bicycling, and equestrian use within the Reserve beginning at the end of the California Trail hiking trail, near Nicholson Ranch, and eventually connecting with the Tea Kettle Trail. This new trail would allow visitors to explore signature rocks and the California Trail corridor without having to drive, walk, or bike along the road.

An equestrian staging area for parking and staging horse trailers would be developed near the Bread Loaves intersection to supplement the equestrian camping provided at Smoky Mountain and the Juniper group site. Alternative B would reconfigure camping within the Reserve to address resource impacts and visual and safety issues based on the proposed recommendations of the *Rim Development Concept Plan for City of Rocks National Reserve* in Appendix D and analyzed as part of this general management plan. Alternative B would also provide for primitive group camping and some additional tent camping sites at Smoky Mountain campground to serve 50-70 people.

The National Park Service would partner with the Idaho Department of Parks and Recreation to develop a primitive camping area for social camping, including some tent campsites on the existing state-leased BLM parcel. The National Park Service would partner with the Idaho Department of Parks and Recreation to construct an amphitheater here for evening programs and interpretive activities as approved in the 1996 comprehensive management plan.

Boundary

Under the Preferred Alternative, there would be no change to the current Reserve boundary. At the southwest corner of the Reserve, the National Park Service would encourage Cassia County, the Bureau of Land Management, and private landowners to protect portions of the California Trail corridor outside the Reserve beginning at the southwest corner of the Reserve and continuing to Granite Pass, the next stop for the emigrants traveling on the California Trail from the Circle Creek encampment.

Climate Change

Alternative B would implement the same climate change mitigation, research, and interpretation strategies outlined in alternative A, including interpretation of the effects of climate change and implementing the Reserve climate action plan to reduce greenhouse gas emissions. In addition, the minimal development emphasis in alternative B would provide for a lower facility-related energy and carbon footprint. To further reduce carbon emissions, Reserve staff would maximize energy efficiency, conservation, and sustainability associated with any new development. Alternative B would also encourage RNA research that analyzes the impacts of climate change on different vegetation types over time.

Alternative C: A Stage for Stewardship

Alternative C would protect resources by encouraging research activities; enhancing educational and interpretive opportunities; and forging partnerships with educational

institutions, agencies, organizations, private landowners, park visitors, and tribes. Visitors would be provided with a variety of opportunities to learn about and experience California Trail history and the many natural wonders within the Reserve. The Reserve would be recognized as part of a much larger area of protected lands—one that provides a stage for fostering improved understanding of resources across the broader landscape.



The Reserve has one of the few old-growth pinyon forests remaining in Idaho and contains the largest pinyon in the state.

Resource Protection

Alternative C would increase public understanding of resources through the application and dissemination of research. This includes recognizing the significance of protecting biological diversity within the Reserve and the role the Reserve plays in the ecological health of the entire region. Working with partners, the Reserve would advocate for natural processes to occur on lands throughout and adjacent to the Reserve, regardless of ownership. The Research Natural Area would be reconfigured and expanded to 693 acres to provide and protect additional flora and fauna species for research. The Reserve would seek partnerships with other agencies to get a better understanding of how wildlife uses the Reserve and surrounding lands.

Grazing

In alternative C, grazing on public lands could be voluntarily eliminated over time within the life span of the general management plan. Encouraging the elimination of grazing in

alternative C would be consistent with the concept of stewardship, with an emphasis on promoting natural processes, and on promoting biodiversity.

To facilitate removal of grazing, a voluntary federal grazing permit buyout program would be initiated. This buyout would allow permittees to exchange their permits for compensation from conservation organizations. The benefits would include: permittees receiving compensation by relinquishing their permit; saving money for taxpayers by decreasing costs associated with subsidizing the federal livestock program for these grazing allotments; reducing related management costs by the National Park Service and the Idaho Department of Parks and Recreation; removing adverse impacts on natural and cultural resources, such as the California National Historic Trail; and protecting and enhancing the Research Natural Area, riparian, and wetland areas.

Education and Interpretation

Additional interpretive and educational programs would be provided primarily through the proposed visitor center and the outdoor learning center, including guided walks and talks and exposure to the Reserve's natural and cultural environment. There would be opportunities for both structured and unstructured activities including self-guided and group discovery. Interpretation and education could also be provided by other non-NPS entities and partners, such as educational institutions or members of the Shoshone-Bannock Tribes. Visitors and youth would participate in stewardship activities that contribute to the preservation of nationally significant resources, such as Reserve geology and the California National Historic Trail. Interpretive programs would focus on immersion, hands-on experiential learning, and environmental stewardship.

Visitor Experience

As in alternative B, a new recreational trail would be developed to connect the California Trail hiking trail to the Tea Kettle Trail. In alternative C, an additional formal trail for hikers would be

developed to the summit of Smoky Mountain from the Smoky Mountain Campground.

An equestrian staging area for parking and staging horse trailers would be developed near the Bread Loaves intersection to supplement the equestrian camping provided at Smoky Mountain and the Juniper group site. Alternative C would reconfigure camping in the Reserve to address resource impacts and visual and safety issues based on the proposed recommendations of the *Rim Development Concept Plan for City of Rocks National Reserve* in Appendix D and analyzed as part of this general management plan.



Campgrounds at Twin Sisters.

The Reserve would encourage the development of a privately operated shuttle service linking the Reserve and Castle Rocks State Park.

Alternative C would develop a smaller, more cost-effective version of the visitor center approved in the Reserve's 1996 comprehensive management plan and the *Castle Rocks State Park Master Plan* for the Reserve. The National Park Service would partner with the Idaho Department of Parks and Recreation to develop a shared visitor center within the expanded boundary, close to the Reserve's Almo entrance.

A second camping loop and amphitheater would be added to the Smoky Mountain Campground, with up to 62 additional campsites with an emphasis on group tent camping. Adjacent to Smoky Mountain Campground, an outdoor learning center would be developed to immerse students and visitors in direct contact with nature through outdoor experiences

emphasizing exploration, reflection, and stewardship. The learning center would connect people, nature, and community through science, art, and the hands-on study of natural and cultural history within the larger Northern Basin and Range ecosystem.



Equestrians tour the Reserve.

Boundary

Alternative C would include a boundary modification of 4,247 acres of land: 652 acres in two private parcels and 3,595 acres managed by the Bureau of Land Management to incorporate scenic resources, portions of the California National Historic Trail, and old-growth pinyon-juniper forest at the east boundary of the Reserve. Smoky Mountain Campground would be located within the expanded Reserve boundary. This expansion would address overcrowding and lack of available campsites during the Reserve's peak season. At the southwest corner of the Reserve, the National Park Service would encourage Cassia County and private landowners to commemorate and protect the California Trail corridor outside the Reserve beginning at the southwest corner of the Reserve and continuing to Granite Pass, the next stop for the emigrants traveling on the California Trail from the Circle Creek encampment. The Reserve would seek to partner with adjacent landowners and agencies to work together on common issues or areas of mutual interest such as nonnative plants, climate change, California National Historic Trail, and Smoky Mountain pinyon forest. In particular, the National Park Service could cooperate or partner with the Bureau of Land Management on projects of mutual interest using the federal Service First

Authority. Cassia County would continue to retain jurisdiction of remaining private lands within the current or revised boundary.

Climate Change

In alternative C, facilities and transportation options would be designed sustainably and with a low carbon footprint. The Reserve would encourage development of a privately operated shuttle system linking Castle Rocks State Park to the Reserve. Rather than building new housing units, the Reserve would work with partners to encourage nearby communities to provide housing for employees, researchers, and visiting scholars.

Alternative C would emphasize enhanced research opportunities on landscape-scale natural resource topics, including climate change. An expanded Research Natural Area would provide and protect additional flora and fauna species for research, including the opportunity for paired studies to compare and contrast species' adaptation to changing natural conditions. By establishing active partnerships, this alternative would promote climate change research and enhance public understanding by sharing the results.

Contingency plans would be developed to address instances of high-intensity fire or increased erosion, each of which could increase as the climate changes. Restoring connectivity between ecosystems and reducing fragmentation would allow ecosystems to adjust and adapt, thus increasing their resilience to fire, drought, invasive species, wildlife, changing water supplies, and other impacts associated with climate change.

Alternative D: Treasured Landscapes Inspiring Stories

Alternative D would focus on telling the stories of the Reserve through the emigrants who passed through it and those who live, work, and recreate in it today. Visitors would gain a deeper understanding of the Reserve's resources through more formal and structured recreational opportunities and programs. This alternative

emphasizes a frontcountry and day-use visitor experience. Alternative D focuses on providing interactive and immersive experiences in the cultural and natural world for different user groups by providing enhanced opportunities to learn, recreate, and enjoy the Reserve.

Resource Protection

Natural and cultural resource preservation and protection would continue to be a high priority for Reserve management. Programs would focus on the inventory and monitoring of resources working with the NPS Upper Columbia Basin Network and private landowners. The Research Natural Area would be reconfigured and expanded to 485 total acres and continue to be managed for its designated values.



Parking becomes an issue during peak season.

Grazing

Grazing permits would continue to be renewed in all zones (except the Research Natural Area Zone) unless there were permittee abandonment or consistent failure to comply with conditions of the permit. To minimize visitor conflicts, the Reserve would also consider removing cattle pasturing from the Visitor Facilities and Access Zone where possible. This could result in a slight reduction in grazing from reconfiguring existing allotments. As in other alternatives, the grazing management plan would be updated to reflect these and other changes.

Education and Interpretation

Alternative D would allow opportunities for visitors and youth to engage in on-site living history activities and demonstration projects

to learn about archeology and other cultural resources. Programs would focus on the California Trail and ranching heritage. Some of these activities would be provided at the proposed full-service visitor center and some through commercial visitor services.

Activities related to natural resources could include ranger-led or field expert-led nature hikes, night sky viewing opportunities, geology field schools, and on-site hunter education programs based on sound wildlife management principles.

Visitor Experience

The current array of recreational opportunities would be expanded to include additional day-use activities, such as more walks and hikes, horseback riding, and biking opportunities. An equestrian staging area for parking and staging horse trailers would be developed to supplement the equestrian camping provided at Smoky Mountain and the Juniper group site. As with alternatives B and C, alternative D would reconfigure camping in the Reserve to address resource impacts and visual and safety issues based on the proposed recommendations of the *Rim Development Concept Plan for City of Rocks National Reserve* in Appendix D and analyzed as part of this general management plan.

In alternative D, a combined City of Rocks National Reserve/Castle Rocks State Park visitor center would be developed as called for by the Reserve's 1996 comprehensive management plan and *Castle Rocks State Park Master Plan*. This permanent visitor center would be located within the expanded boundary, close to the Almo entrance of the Reserve.

A second campground loop at Smoky Mountain Campground would be added with up to 62 additional campsites. Instead of a mixture of tent and recreational vehicle camping as in alternatives A and B, and instead of the group tent camping experience provided for in alternative C, there would be an emphasis on developing more individual tent campsites.

Boundary

Similar to alternative C, alternative D would include a boundary modification of 4,247 acres of land: 652 acres in two private parcels and 3,595 acres managed by BLM to add scenery, portions of the California National Historic Trail, and old-growth pinyon-juniper forest at the east boundary of the Reserve. Smoky Mountain Campground would be located within the proposed Reserve boundary. Cassia County would continue to retain jurisdiction of remaining private lands within the current or revised boundary. As in alternatives B and C, at the southern boundary of the Reserve, the National Park Service would encourage Cassia County and private landowners to commemorate and protect the California Trail corridor from the southwest corner of the Reserve to Granite Pass.

Climate Change

Management of actions associated with climate change mitigation, research, and interpretation would be the same as alternative B, plus the Reserve would encourage commercial visitor services guides to use vehicles with alternative fuels to limit emissions within the Reserve and at Castle Rocks State Park. The Reserve would also encourage visitor activities that promote walking or hiking, rather than driving.



Sunset and rainbow.

ENVIRONMENTAL CONSEQUENCES

The potential effects of the four alternatives are analyzed for the following resources:

- land use
- air quality
- lightscapes
- soundscapes
- geology and soils
- water resources (including hydrology and water quantity, water quality, and wetlands)
- vegetation
- wildlife
- special status species
- cultural resources (including prehistoric and historic archeology and cultural landscapes)
- visitor experience (including access and transportation, visitor use opportunities, interpretation and education, visitor and employee safety, and scenic resources)
- park operations and partnerships
- socioeconomics
- special uses and designations (including national natural landmark, natural historic landmark, California National Historic Trail, and grazing and livestock trailing)

As required under the National Environmental Policy Act (NEPA), unavoidable adverse impacts, the relationship between short-term use of the environment and maintenance and enhancement of long-term productivity, and irreversible and irretrievable commitments of resources are also discussed. This analysis is the basis for analyzing the advantages and disadvantages of the action alternatives compared to the No Action Alternative.



The planning team developed three action alternatives for the Reserve.

SUMMARY OF IMPACTS

The potential effects of each of the four alternatives on the affected environment of the Reserve are described in this GMP/EIS. Environmental documents disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. Analysis of alternative A provides the basis for comparing the effects of the action alternatives (alternatives B, C, and D). Impacts are described in terms of type of impact (beneficial or adverse), area, duration, and intensity—whether they are negligible, minor, moderate, or major. The analysis also provides consideration of cumulative impacts and measures to avoid, minimize, and/or mitigate impacts. Cumulative impacts are the incremental impacts of an action when it is added to past, present, and future actions occurring in the same vicinity, regardless of who undertakes these actions. In addition to determining the environmental consequences of the preferred and other alternatives, NPS *Management Policies 2006* (NPS 2006a) and Director’s Order 12 (NPS 2001) require analysis of potential effects to determine if actions would impair park resources. This impairment analysis will be appended to the Record of Decision.

As shown in “Table 19. Summary of Impacts” in chapter 3, there would be a wide range of negligible to major adverse and beneficial effects in alternatives A–D. Adverse and beneficial effects would vary among alternatives.

Impacts from Alternative A

Impacts under alternative A would continue to be those that are occurring under current management. Most impacts on natural and cultural resources would range from negligible to moderate and would include beneficial impacts from current operations, such as from nonnative invasive plant treatment. Some impacts, such as vegetation and wetlands impacts, would continue to be locally major from changes related to grazing. These would also be combined with beneficial effects from reducing grazing in and near springs and wetlands. There would also be a range of generally beneficial impacts related to visitor experience, including from activities the Reserve currently conducts in interpretation and education; however, visitors would continue to experience peak season crowding at some popular facilities and campsites and at the visitor center. If a new visitor facility was constructed, this action could improve visitor experience, especially associated with acquiring information about the park. There would continue to be no adverse effects on cultural resources, such as the prehistoric and historic archeological resources, the California National Historic Trail, and the City of Rocks National Historic Landmark.

Impacts from Alternative B (Preferred Alternative)

Impacts under alternative B, the preferred alternative, would be similar to alternative A but would have a wider range of beneficial impacts compared to alternative A. Proposals in alternative B would reduce some visitor impacts, such as through implementation of the *Rim Development Concept Plan for City of Rocks National Reserve* and from providing more visitor information and educational opportunities in the proposed campground amphitheater. Camping opportunities, including a wider range of sites in more durable areas, would also be improved. The current range of negligible to moderate or locally major adverse effects on vegetation and wetlands would probably continue, depending on permittee interest in continuing to lease grazing allotments.

Grazing could be reduced through attrition in this alternative. As in alternative A, visitors would continue to experience some peak season crowding in some areas that would generally not be alleviated by the proposals in this alternative. The small building used for a visitor center, however, could be remodeled, improving the setting for delivery of some information about the park. This alternative would also include the potential for some restoration of riparian areas and would undertake a variety of planning efforts to improve climbing, grazing, and vegetation management along the California National Historic Trail. Additional wildlife inventory and other programs to improve resource knowledge would also expand. As in alternative A, climbing routes would continue to be analyzed for sensitive resources and this could continue to result in seasonal use modifications, an ongoing beneficial effect on some resources, such as nesting raptors. There would also be more efforts to improve resource knowledge, resulting in long-term benefits to understand these and the need for management actions. Compared to alternative A, there would be a variety of beneficial effects from application of revised management zones that would improve resource protection by targeting smaller areas for potential management and visitor uses.



Visitors find parking and campsites near trailhead.

Impacts from Alternative C

Impacts under alternative C would have a similar range compared to alternatives A and B but would tend toward more beneficial impacts from broader improvements in visitor services, education, and interpretation, and from more focus on resource protection, including association with a potential boundary expansion. Instead of reducing grazing through attrition, grazing permittees would be offered a voluntary buyout program and this could lead to

long-term beneficial effects on water resources and vegetation currently affected by grazing sooner than in alternative B. There would be an emphasis on learning more about Reserve resources through inventory and monitoring and by encouraging partnerships with researchers and research institutions. This knowledge would be shared widely with visitors, including students, through the outdoor learning center, new visitor center, and amphitheater proposed in this alternative. Other impacts related to actions identified in alternative B, such as improvements in camping, implementation of the Rim development concept plan, would also have a range of minor to moderate adverse and beneficial effects in implementation.



The visitor center serves the Reserve and Castle Rocks State Park.

Impacts from Alternative D

Impacts under alternative D would range from negligible to moderate, including some locally major impacts related to grazing, but would generally be similar to alternatives A and B, with more beneficial effects from a boundary expansion as in alternative C. There would probably be more minor to moderate adverse effects from an emphasis on providing for more frontcountry visitor services within the Reserve; however, these would be coupled with additional inventory and monitoring of resources and providing for more active interpretation and education, actions that would have long-term beneficial effects. As in alternative A, grazing would continue and would continue to have a range of effects; however, in alternative D, there would be opportunities for visitors to participate in ranch-related activities.

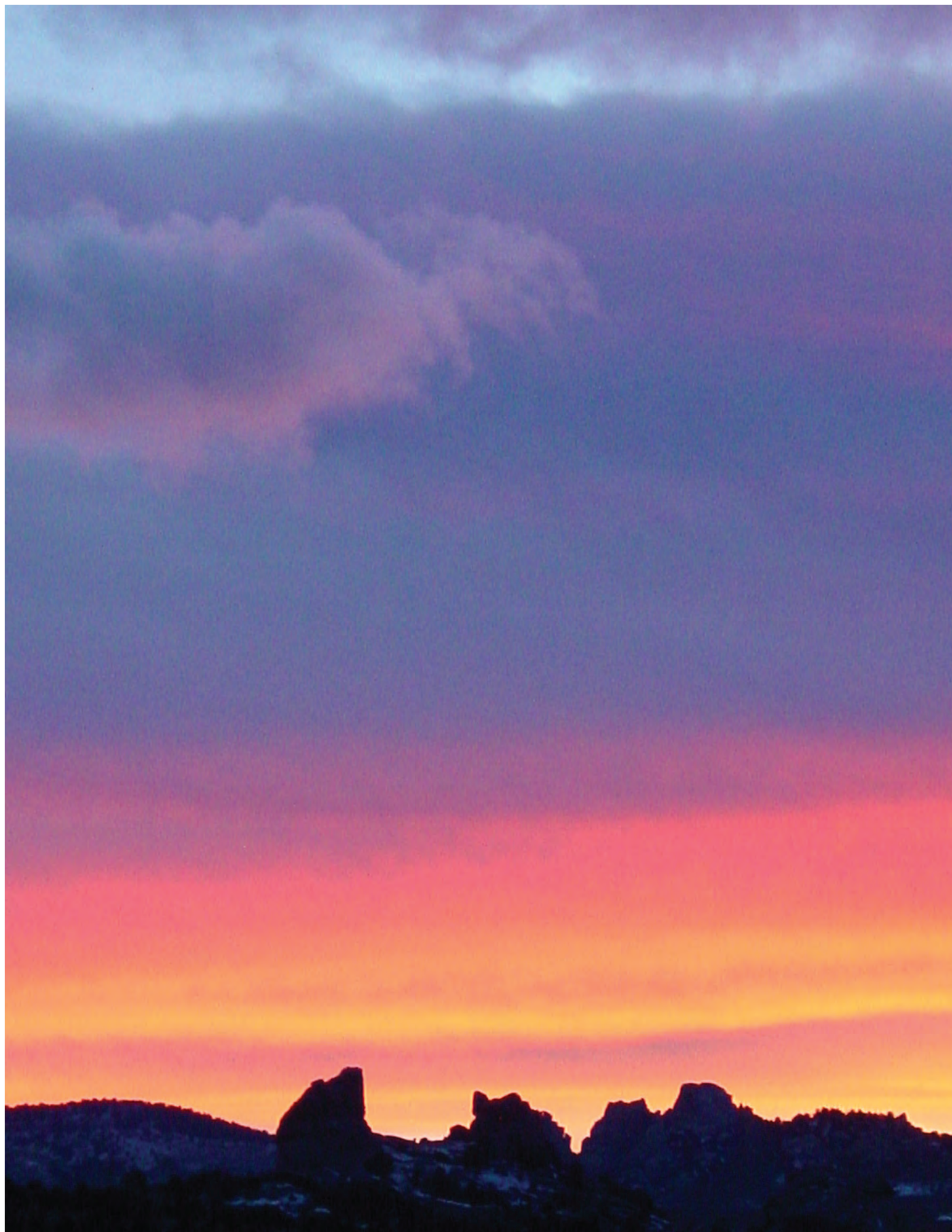


Table of Contents

Chapter 1: Introduction and Background	1
Chapter 2: Foundation for Planning and Management	41
Chapter 3: Alternatives	79
Chapter 4: Affected Environment	193
Chapter 5: Environmental Consequences	305
Chapter 6: Public Involvement	467
Preparers and Consultants	477
Acronyms	481
Glossary	486
Selected Bibliography	501
Appendix A: Reserve Legislation	527
Appendix B: Pertinent Laws, Policies, and Procedures	535
Appendix C: City of Rocks National Reserve Wilderness Eligibility Assessment	536
Appendix D: <i>Rim Development Concept Plan for City of Rocks National Reserve</i>	541
Appendix E: Analysis of Boundary Adjustment and Land Protection	570

TABLES

Table 1. Summary of Presidential, Legislative, and Administrative Actions	47
Table 2. Desired Conditions and Potential Management Strategies Derived from Laws, Regulations, and Policies	49
Table 3. Management Zones	83
Table 4. Alternative A, Staffing	102
Table 5. Summary of One-time Cost for Alternative A, No Action Alternative	105
Table 6. Alternative A, Summary of Costs	106
Table 7. Alternative B, Staffing	117
Table 8. Summary of One-time Cost for Alternative B, Preferred Alternative	119
Table 9. Alternative B, Summary of Costs	121
Table 10. Alternative C, Staffing	133
Table 11. Summary of One-time Cost for Alternative C	

Table 12. Alternative C, Summary of Costs	137
Table 13. Alternative D, Staffing	145
Table 14. Summary of One-time Cost for Alternative D	147
Table 15. Alternative D, Summary of Costs	150
Table 16. Indicators, Standards, Management Strategies, and Monitoring Strategies	151
Table 17. Summary of Comparative Costs	170
Table 18. Summary of Alternatives	171
Table 19. Summary of Impacts	186
Table 20. County Profiles of Idaho-Cassia	198
Table 21. Average Maximum Temperature	199
Table 22. Average Rainfall	199
Table 23. National Ambient Air Quality Standards (as of October 2012)	201
Table 24. 2007 Baseline Emission Results for City of Rocks National Reserve – Metric Tons Carbon Dioxide Equivalent (MTCO ₂ E)	204
Table 25. Examples of Sound Levels	208
Table 26. Explanation of Sound Level Values	210
Table 27. Explanation of Common Weathering Features Found on Pinnacles in the Reserve	215
Table 28. General Soil Map Units and Their Characteristics	221
Table 29. Summary of Water Well Information	225
Table 30. Special Status Plant Species	231
Table 31. Special Status Wildlife Species	237
Table 32. City of Rocks National Reserve Visitation	264
Table 33. Wayside Exhibits for City of Rocks National Reserve and Castle Rocks State Park	270
Table 34. Primary Designated Trails and Roads with Mileage	287
Table 35. Fence Ownership and Maintenance Responsibilities	288
Table 36. Cassia County Population Trends and 2020 Projection	295
Table 37. Community Population Trends	295
Table 38. Cassia County Employment by Industry	296
Table 39. Covered Employment and Average Annual Wages Per Job for 2001, 2010, and 2011	297
Table 40. Economic Impact of City of Rocks National Reserve on Community	301

Table 41. Comparison of Zoning by Alternative	315
Table 42. National Wetlands Inventory Data for Grazing Allotments	356
Table 43. Special Status Plant Species	386
Table 44. Special Status Wildlife Species	387
Table 45. Comparison of Grazing Allotments 1989 and 2013	452

FIGURES

Figure 1. Regional Context	2
Figure 2. Land Ownership and Management	3
Figure 3. Existing Conditions (brochure map)	4
Figure 4. Designations	6
Figure 5. Alternative A: No Action Alternative	94
Figure 6. Alternative B: Silent City of Rocks	108
Figure 7. Trail Addition for Alternative B	114
Figure 8. Alternative C: A Stage for Stewardship	122
Figure 9. Trail Additions for Alternatives C and D	129
Figure 10. Alternative D: Treasured Landscapes Inspiring Stories	139
Figure 11. User Capacity Framework	156
Figure 12. Grazing Allotments	194
Figure 13. Cassia County Zoning	197
Figure 14. Geology	211
Figure 15. Soils	218
Figure 16. Hydrology	223
Figure 17. Wetlands	227
Figure 18. Vegetation	228
Figure 19. Research Natural Area	241
Figure 20. Cultural Resources	250
Figure 21. Tribal Territories	258
Figure 22. Trails	266
Figure 23. Scenic Viewpoints	278

Chapter 1

Introduction and Background





Chapter 1: Introduction and Background

City of Rocks National Reserve (Reserve) is a unit of the national park system and is managed by the Idaho Department of Parks and Recreation (IDPR). The Reserve is located in the Albion Mountains and is part of the Northern Basin and Range Ecoregion. The Reserve is within Idaho's Second Congressional District in Cassia County, Idaho.

LOCATION AND ACCESS

City of Rocks National Reserve is located in south central Idaho approximately two miles north of the Utah border. Interstate 84, the Snake River Valley, and the city of Burley (the Cassia County seat) are located approximately 50 miles to the north. The Reserve is surrounded by the gateway communities of Almo, Elba, and Oakley.

Most visitors access the Reserve off Interstate 84 at either the Declo or Malta exits and follow Idaho State Highway 77 south through Albion and Elba to the Reserve entrance at Almo. A second entry can be accessed by driving south along State Highway 27 to Oakley, then turning east into the Emery Canyon entrance or into the Junction entrance further south.

The nearest air service is located at Twin Falls or Pocatello (approximately 80–100 miles), followed by Salt Lake City or Boise (approximately 200 miles). There is no public transportation to the Reserve (“Figure 1. Regional Context”).

REGIONAL CONTEXT

City of Rocks National Reserve is one of many publicly owned or managed lands within the region. A unit of the Sawtooth National Forest is adjacent to the northern portion of the Reserve at Graham Peak, and two other Sawtooth National Forest units are located to the west and south of the Reserve. The Bureau of Land Management (BLM) lands abut the Reserve's east, south, and west boundaries. Though there is no designated wilderness adjacent to the Reserve, the Sawtooth National Forest Independence Lakes area immediately north is designated an Inventoried Roadless Area by the U.S. Forest Service (USFS).

In addition to federally owned lands, the state of Idaho owns lands surrounding the Reserve. These include Castle Rocks State Park—one mile to the northeast of the Reserve—and several Idaho Department of Lands parcels located to the south and southeast of the Reserve boundary (“Figure 2. Land Ownership and Management”). The state of Idaho also owns one section of land in the heart of the Reserve (Section 36, the original City of Rocks State Park) subject to IDPR management. Privately owned land is found both within and around the Reserve boundary. Figure 3 shows existing conditions at the Reserve.



Window Arch.

FIGURE 1. REGIONAL CONTEXT



FIGURE 2. LAND OWNERSHIP AND MANAGEMENT

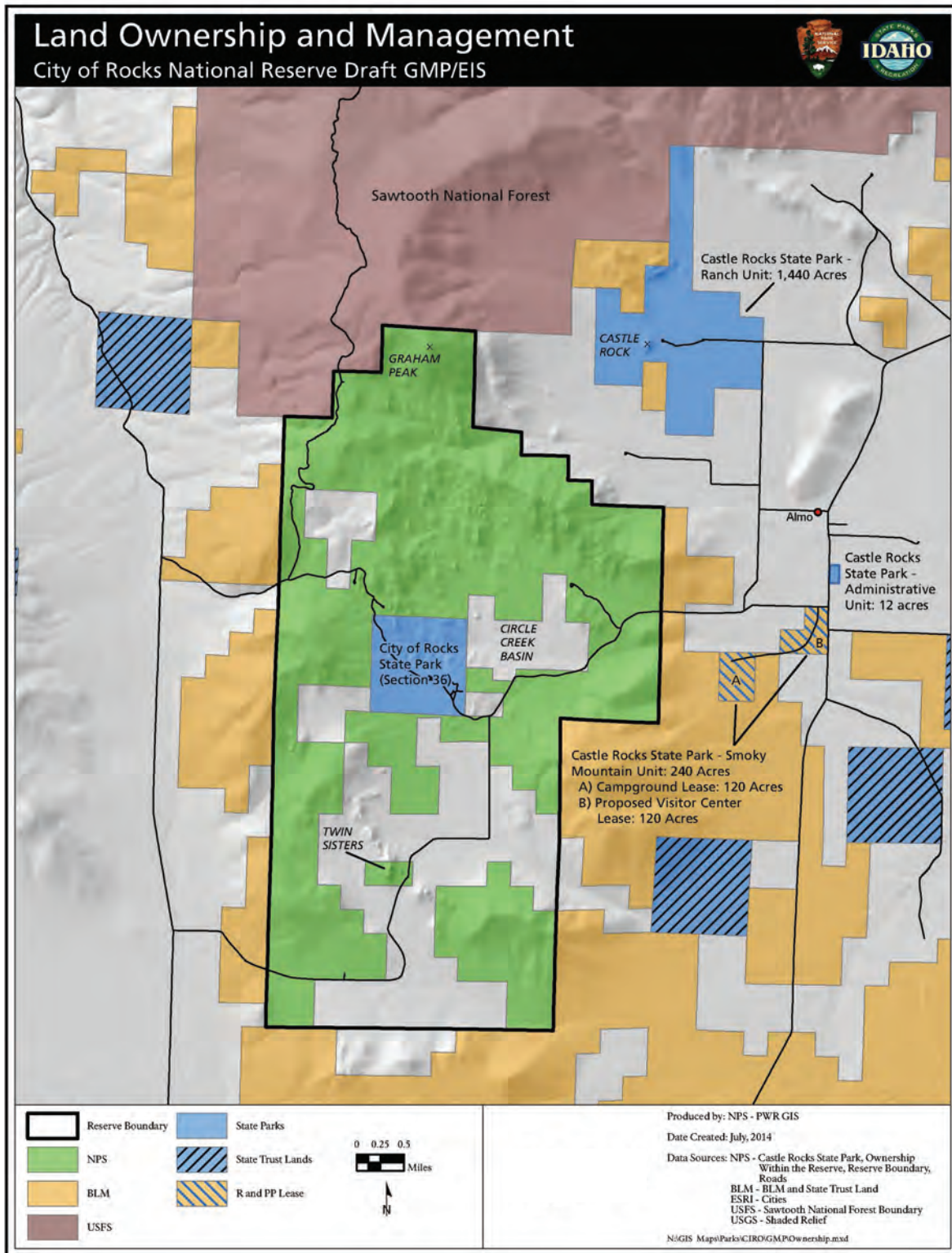
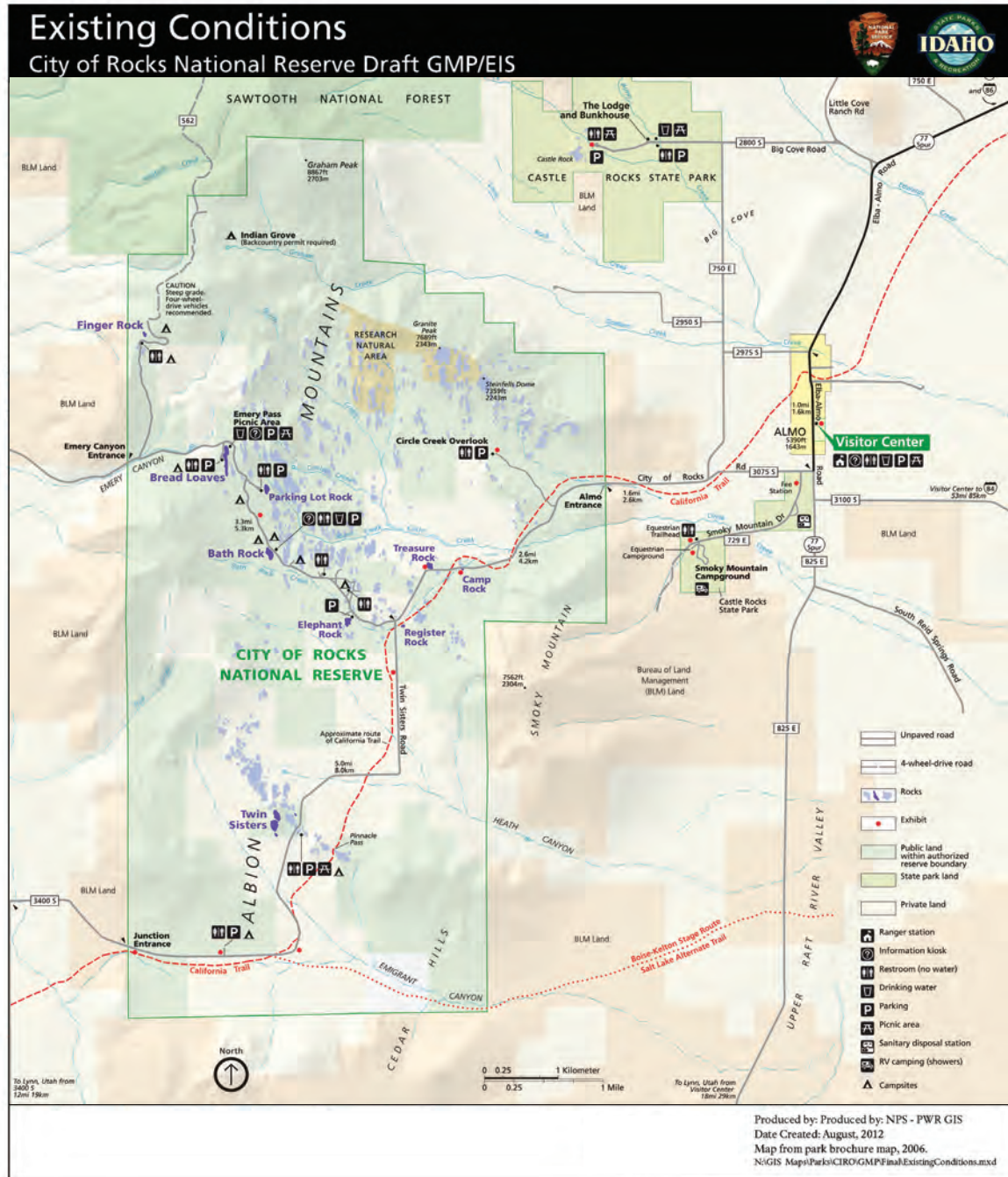


FIGURE 3. EXISTING CONDITIONS



ESTABLISHMENT OF CITY OF ROCKS NATIONAL RESERVE

City of Rocks is a unique geologic area exhibiting granite pinnacles and monoliths more than 60 stories tall. It has long been an oddity and wonder, especially for passing emigrants along the California Trail (1843–82). One emigrant artist, James F. Wilkins, named the area “Silent City of Rocks” in 1849. The surrounding area was some of the last to be settled in Idaho and was homesteaded by a few ranchers in the 1870s. Starting in the 1920s, supporters of the natural and cultural richness of City of Rocks proposed the area as a national monument.

On February 27, 1957, the Idaho Legislature declared Section 36 within City of Rocks as a state park under the jurisdiction of the Idaho Lands Board. In 1964, a large area including Section 36 was designated a national historic landmark. On March 15, 1973, Section 36 was transferred to the Idaho Department of Parks and Recreation and the following year the area was designated a national natural landmark (“Figure 4. Designations”). The National Park Service (NPS) published a suitability and feasibility study for a proposed City of Rocks National Monument in July 1973 and a study for management alternatives for the City of Rocks Area in 1986.

For generations of Cassia County residents, City of Rocks’ scenic, natural, and cultural resources have provided inspiration, educational opportunities, and recreation. Concern over increasing use of the area (without available amenities) by visitors from outside the region prompted local residents to support efforts to designate City of Rocks as a national reserve.

City of Rocks National Reserve was established by Congress on November 18, 1988, by the Arizona-Idaho Conservation Act of 1988 (Public Law 100-696) (“Appendix A: Reserve Legislation”). The purpose of this legislation is “to preserve and protect the significant historical and cultural resources; to manage recreational use; to protect and maintain scenic quality; and to interpret the nationally significant values of the reserve.”

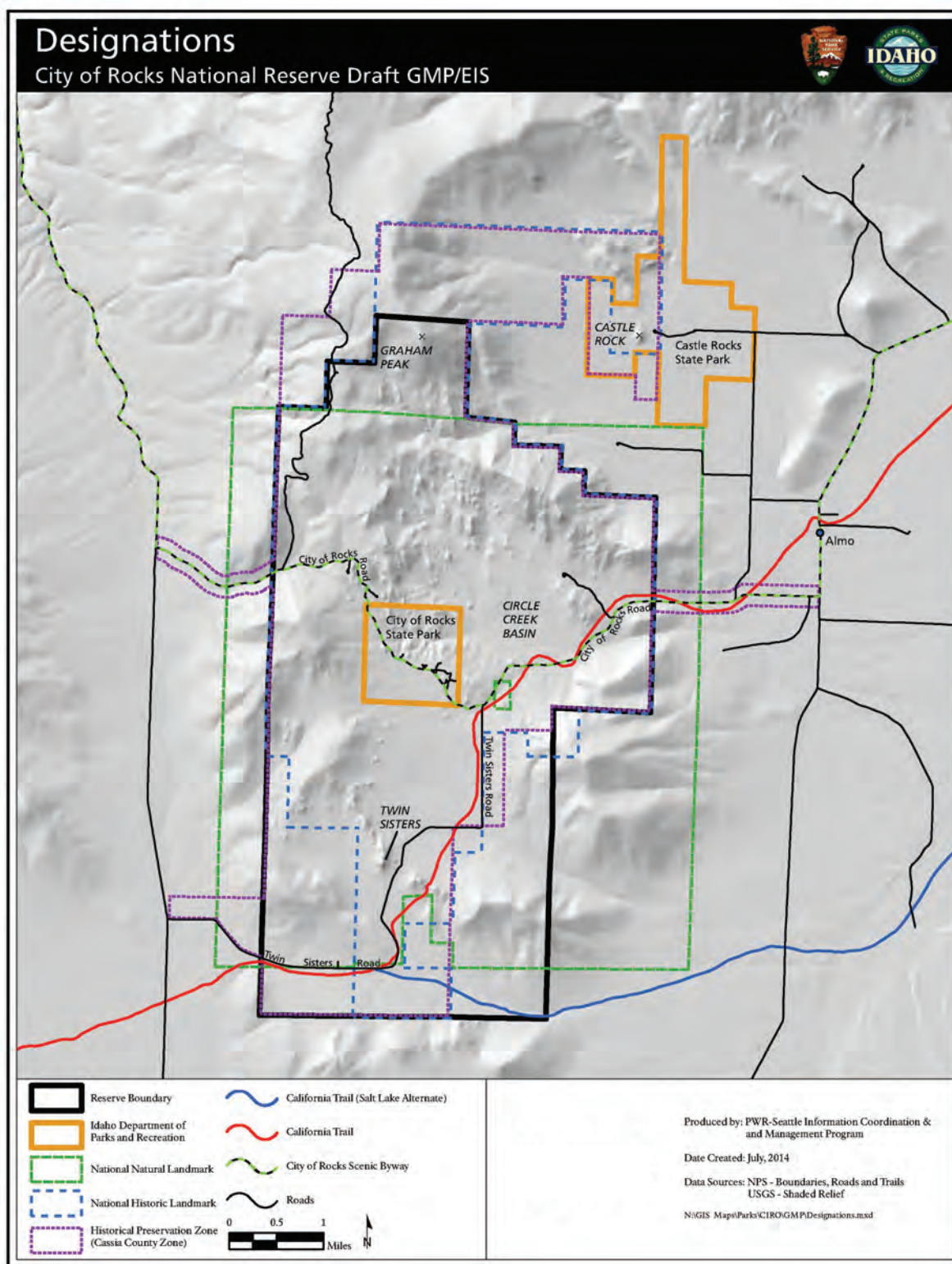
When the Reserve was established, Congress recognized the closely interwoven relationship between the local community, private landowners, traditional use, and the need for resource protection.

The 1988 act drew a 22-mile boundary around lands owned or managed by the U.S. Forest Service, Bureau of Land Management, Idaho Department of Parks and Recreation, and private individuals. A comprehensive management plan was then developed for the site, followed by establishment of a cooperative management agreement between the National Park Service and the Idaho Department of Parks and Recreation. Upon completion of the cooperative management agreement, the National Park Service officially transferred on-site management of the Reserve to Idaho Department of Parks and Recreation on May 2, 1996.

DESCRIPTION OF THE RESERVE

City of Rocks National Reserve comprises an area of 14,407 acres (“Figure 2. Land Ownership and Management”). Of that total, approximately 9,680 acres are in federal ownership, 4,087 acres are in private ownership, and 640 acres are owned by the State of Idaho. Public ownership within the Reserve includes both NPS and state-owned land, including a state-owned parcel known as Section 36 (legally named City of Rocks State Park). Private land within the Reserve is regulated by Cassia County zoning and subdivision ordinances. At the time the Reserve was established, legislation required that local government have in place ordinances or other regulations that would preserve the historic and natural features of the area. Cassia County responded with the creation of a Historic Preservation Zone. This zone limits existing landowners to one residence per ownership of record at the time the Reserve was established, and it requires land uses consistent with those of 1988 or earlier. Currently this zone covers most, but not all, of the Reserve (“Figure 4. Designations”).

FIGURE 4. DESIGNATIONS



Visitors come to the Reserve to walk parts of the California National Historic Trail (California Trail) (6.2 miles) and the Salt Lake Alternate (1.8 miles) and to immerse themselves in the surrounding cultural landscape that appears strikingly similar as it did in the mid-1880s. That landscape includes remnant historic trail ruts, more than 350 emigrant signatures on 22 rocks, a portion of the Mormon Battalion Trail, and the Kelton-Boise Stage Route. Other cultural resources include prehistoric artifacts, homesteads, irrigation and ranching improvements, and mica mines. Cattle graze on private lands adding to the historic scene. There are seven authorized allotments regulated by permit between May and September. The Shoshone-Bannock Tribes have traditionally used the area for seasonal hunting and pine nut gathering.

Elevations within the Reserve range from 5,720 feet at the east entrance to 8,867 at Graham Peak, resulting in a total relief of 3,147 feet. Visitors from all over the world come to the Reserve to study the unique geology and to climb the granite rock formations. The natural resources in the Reserve are diverse. Vegetation communities include sagebrush steppe, pinyon-juniper woodlands, mountain mahogany woodlands, and higher forest communities of aspen, sub-alpine fir, lodge-pole pine, and limber pine. The Reserve's pinyon-juniper forest contains the state champion pinyon pine and is the largest forest of its kind in Idaho. There are 498 species of plants, 142 birds, 5 amphibians, 14 reptiles, and 56 mammals documented or expected within the Reserve. Idaho's only known population of cliff chipmunk is in the Reserve and on adjacent lands. Other fauna of note include mule deer, coyote, bobcat, mountain lion, moose, elk, and big-horn sheep. The big-horn sheep were reintroduced a few miles north, but have been seen in the Reserve.



Emigrant signatures on rocks.

Approximately 100,000 visitors pass through the Reserve annually, primarily between April 1 and October 30. Today the park offers camping, climbing, hiking, backpacking, equestrian riding, mountain biking, sight-seeing, hunting, and much more. Many come from the metropolitan areas of Utah's Wasatch Front, or from the populated areas of southern Idaho (Boise, Twin Falls, Pocatello, and Idaho Falls). Nearly every state is represented in visitor registers and on camping receipts with the western states of Utah, Wyoming, California, Colorado, and Oregon listed most frequently. More than

a dozen foreign countries are also represented annually. The Reserve is open year-round; however some roads are impassable to vehicles in winter.

EVENTS AFFECTING THE RESERVE AFTER ENABLING LEGISLATION

The following actions and legislations occurred after the Reserve was established but have a direct effect on how the Reserve is managed (see also "Summary of Presidential, Legislative, and Administrative Actions" in "Chapter 2: Foundation for Planning and Management").

HUNTING WITHIN CITY OF ROCKS NATIONAL RESERVE

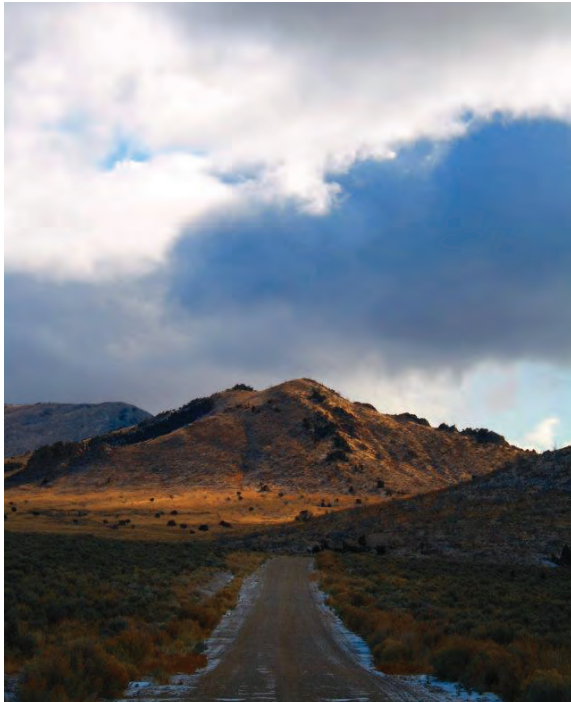
In November 1990, Public Law 101-512 ("Appendix A: Reserve Legislation") was enacted, which permits hunting in the Reserve in accordance with applicable federal and Idaho state laws. The law states that there can be designated zones and periods in which hunting is prohibited for reasons of public safety, administration, floral and faunal protection and management, or public use and enjoyment.

Restrictions on hunting would be put into effect only after consultation with the Idaho Department of Fish and Game, which has jurisdiction over hunting activities.

CALIFORNIA NATIONAL HISTORIC TRAIL LEGISLATION AND NATIONAL TRAILS SYSTEM ACT

In August 1992, Congress passed Public Law 102-328 (“Appendix A: Reserve Legislation”), which amended the National Trails System Act to designate the California National Historic Trail and the Pony Express National Historic Trail as components of the national trails system. This legislation included all routes and cutoffs (including the Salt Lake Alternate), extending from Independence and Saint Joseph, Missouri, and Council Bluffs, Iowa, to various points in California and Oregon.

The National Trails Systems Act, Public Law 90-543, was enacted into law in 1968 and defined the purpose of the national historic trails as “the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment.”



A section of the California National Historic Trail is preserved and protected in the Reserve.

CASSIA COUNTY DESIGN GUIDELINES

In 1995, the *Cassia County Design Guidelines* were prepared by the Department of Landscape Architecture and Environmental Planning at Utah State University for the Cassia County Commission. The guidelines were intended for stakeholders, developers, and the general public to assist in complying with the intent of the City of Rocks National Reserve legislation and “to help ensure perpetuation of the intact and beautiful landscape of Cassia County” (Timmons 1995: p. iii).

The document analyzes the essential elements of the visual landscape of the area and proposes a set of guidelines to encourage and assist future development within and around City of Rocks National Reserve. It was also developed for the Cassia County Planning Commission to use in reviewing development proposals and to guide citizens and developers in designing their projects so that they are compatible with the unique visual qualities of the area. Cassia County adopted these guidelines.

CITY OF ROCKS BACK COUNTRY BYWAY

In 1996, the 49-mile City of Rocks Back Country Byway was designated by the State of Idaho and became 1 of 17 scenic and historic byways in the state. This scenic route runs through Cassia County between the cities of Albion and Oakley, through City of Rocks National Reserve, and portrays historically significant working landscapes (shown as Twin Sisters Road and City of Rocks Road on figure 3). Byway designation expanded opportunities for protection of the rural heritage and interpretation of the area through new marketing and funding sources.

The City of Rocks Back Country Byway Advisory Committee (Cassia County) produced the *City of Rocks Back Country Byway Rural Heritage Stewardship Handbook and Byway Management Plan* in June 1998. It is intended to provide a vision and direction for the byway and to coordinate various activities among citizens and local, state, and federal agencies.

The byway was proposed by the National Park Service when developing the Reserve’s first comprehensive management plan. City of Rocks National Reserve is considered the “heart of the byway” (Cassia County 1998: p. 9).

About half of the byway is paved. The section through the Reserve is not paved, in keeping with the historic rural character of the Reserve. The byway management plan mentions the importance of retaining the historical character along the roadway through the Reserve and states that “the feeling of being allowed to experience nature in an undisturbed state is enhanced by the road surface and the way the road is situated within the landscape” (Cassia County 1998: p. 33).

CASTLE ROCKS STATE PARK ACQUISITION

The Castle Rock Ranch Acquisition Act of 2000 (Public Law 106-421) (“Appendix A: Reserve Legislation”) authorized the National Park Service to purchase the 1,240-acre Castle Rock Ranch one mile northeast of the Reserve. The purchase was completed on March 15, 2001. The acquisition act did not authorize the inclusion of Castle Rock Ranch in the Reserve boundary, nor was the National Park Service authorized to manage the land for recreation. Instead, the purpose was to make this property available for exchange with state-owned lands at Hagerman Fossil Beds National Monument. The state lands within the park boundary at Hagerman came into the ownership of the National Park Service and the Castle Rock Ranch came into the ownership of the state of Idaho. The land exchange was completed in October 2004. The National Park Service and the Idaho Department of Parks and Recreation signed an exchange agreement on August 21, 2003, and Castle Rocks State Park became officially recognized. Since May 2003, the Idaho Department of Parks and Recreation has provided park facilities and managed recreation at the park. The state park remains outside the Reserve boundary.

On December 18, 2006, an additional 200 acres were purchased by Idaho Department of Parks and Recreation, connecting the ranch to the southern base of Cache Peak, and on December 21, 2007, a 120-acre conservation easement with 10 acres of recreational access east of Eagle Rock Grove was purchased.

As part of the transfer of the Castle Rocks State Park Ranch Unit, the National Park Service, the Idaho Department of Parks and Recreation, the Idaho State Historic Preservation Office, and the Advisory Council on Historic Preservation signed a memorandum of agreement (MOA) in 2003. Stipulation 4 of this agreement states, “IDPR agrees that the NPS, as an interested party representing the Secretary of the Interior, will be provided an opportunity to comment on proposed undertakings that will affect significant features of Castle Rocks Ranch properties currently located within the existing boundaries of the City of Rocks National Historic Landmark at early stages of project development.” A portion of the Castle Rocks State Park Ranch Unit, including the Castle Rock formation, is part of the City of Rocks National Historic Landmark (“Figure 4. Designations”).

HISTORY OF TWIN SISTERS CLIMBING CLOSURE

Climbing Background

City of Rocks National Reserve has become famous for sport climbing, while still offering classic crack climbs and traditional face climbs. As the Reserve received increased media attention for its sport routes and quality of climbing and camping experience, the area’s popularity increased substantially. Although rock climbing had been occurring in City of Rocks since the 1960s, a 1973 NPS suitability/feasibility study for the proposed City of Rocks National Monument did not even mention climbing. By 1987, climbing and its impacts figured prominently in the NPS study of management alternatives for the City of Rocks area. How to manage rock climbing became an immediate concern of the National Park Service following

the Reserve's designation in November 1988. During the process for developing the Reserve's first comprehensive management plan, it became clear to the Reserve management that climbing and traditional land uses were important management considerations.



Twin Sisters.

Twin Sisters Closure

Due to potential natural and cultural resource impacts, on March 24, 1993, the NPS Pacific Northwest Regional Director issued a moratorium on public climbing and prohibited any incidental recreational use of the Twin Sisters pending a final decision from the comprehensive management plan and subsequent climbing management plan. The memorandum tasked the superintendent and regional resource chiefs to conduct research and resource impact studies that would form the basis for a long-term management decision for the Twin Sisters formation. The study addressed the potential impacts of rock climbing on the natural resources (soils, geological features, vegetation, wildlife, and views) of the Twin Sisters. No significant impacts on natural resources were found.

The "Twin Sisters Resource Study" (Reserve 1993) also evaluated the cultural resource significance of the formation based primarily on existing studies, including the national historic landmark documentation and 61 emigrant diaries and journals. The evaluation included consultation with the Shoshone-Bannock Tribes, Idaho State Historic Preservation Office, and the Advisory Council on Historic Preservation.

The findings and recommendations resulted in closure of the Twin Sisters to climbing and management of recreational use to protect cultural values.

Following approval of the comprehensive management plan, the draft climbing management plan and environmental assessment was prepared. Comments on the plan indicated that most climbers supported access to Twin Sisters climbing routes, while cultural resource specialists, historians, and California Trail enthusiasts favored continued closure to technical rock climbing on the landmark. The final plan resulted in a decision to protect the resources and values of the Reserve while allowing for appropriate levels of public recreational climbing use. Climbing was prohibited within the California Trail management subzone which included the Twin Sisters formation. Subsequent litigation (civil case no. CIV 98-0556-E-BLW) resulted in a decision affirming the closure (March 29, 2000).

The court concluded that the National Park Service properly followed the law and regulations in concluding that there was no significant impact on the environment by the closure of the Twin Sisters to recreational use, such as climbing, nor did the socioeconomic effect on climbers warrant an environmental impact statement (EIS). The court also noted that judgments of historical significance made by the Advisory Council on Historic Preservation, the expert regulatory body concerned with preserving, restoring, and maintaining the historical and cultural environment of the nation, deserved great weight. The NPS decision reached was not arbitrary or capricious. The enabling legislation directed conservation and protection of the cultural and historical resources and it was clear that City of Rocks National Reserve was not created to protect climbing opportunities for the general public.

MANAGEMENT OF CITY OF ROCKS NATIONAL RESERVE

As a unit of the national park system, the National Park Service provides support to the Reserve through the services of the Pacific West Region, the Denver Service Center, Harpers Ferry Design Center, and Washington office staffs in areas concerning interpretation, resource management, and site development. The National Park Service ensures that its responsibilities under the National Historic Preservation Act, National Environmental Policy Act, and other appropriate federal legislation are carried out by the state of Idaho in administration of the area.

The Reserve differs from most traditional national park units due to its unusual management arrangement, as well as certain traditional uses that are allowed to continue, provided they are consistent with the obligation to protect the area. There are only two national reserves in the national park system. The other national reserve is Ebey's Landing National Historical Reserve in Washington state, established in 1978.

The Reserve is managed by the Idaho Department of Parks and Recreation to preserve and protect the nationally significant historical, cultural, and scenic resources; to manage recreational use; and to interpret the area's resources for the public. State management of the Reserve fulfills a mandate of the enabling legislation calling for the "state or appropriate units of local government" to manage the Reserve. The same staff who manage City of Rocks National Reserve also manage nearby Castle Rocks State Park.

The missions of the National Park Service and Idaho Department of Parks and Recreation are complementary. The mission of the National Park Service is "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (NPS Organic Act).

The IDPR mission is "to improve the quality of life in Idaho through outdoor recreation and resource stewardship" (Reserve 2010b: p. 5). A cooperative agreement (Cooperative Agreement 1443-CA9000-96-0002) and the "2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)" (revised 2014) were developed between the two agencies to assure efficient and high-quality management of the Reserve, meeting the missions of each agency. The operation plan and guidelines for management document is periodically updated to keep it current.



Rainwater in panholes on granite.

ROLE OF THE NATIONAL PARK SERVICE

As written in the cooperative agreement, the role of the National Park Service is largely one of oversight and technical assistance. This includes annual review of IDPR management and administration of the Reserve, as well as technical expertise and training in program areas such as interpretation and visitor services, resource and visitor protection, resource management, information management, facility maintenance and development, and planning. The operation plan and guidelines for management provides context and parameters for cooperation between the two agencies to assure efficient and high-quality management and administration of the Reserve.

As mentioned, the National Park Service remains responsible for compliance with federal resource protection laws, such as the National Historic Preservation Act and the National Environmental Policy Act. The National Park Service also has a role in section 106 review of national historic landmarks (NHL). The National Park Service is delegated monitoring and technical assistance responsibilities by Congress to ensure that national historic landmarks retain the highest level of integrity (36 CFR 65.7). NPS responsibilities include review and formal comment on individual proposed actions that have the potential of adversely affecting national historic landmarks as well as the cumulative effect of changes through time on NHL properties. More specifically, there are special requirements that apply to national historic landmarks pursuant to section 110 of the National Historic Preservation Act and section 800.10 of the regulations: 16 USC Section 470h-2(f) mandates that “[P]rior to approval of any Federal undertaking which may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark.”

Though the Idaho Department of Parks and Recreation is responsible for programmatic compliance, such as archeological clearance prior to ground disturbance, NPS cultural resource specialists provide consultation and assist the department with meeting this responsibility as noted in the Reserve’s operation plan and guidelines for management.

NPS authority to provide technical assistance to private property owners within the Reserve is based on the following laws: National System Trails Act of 1968 (California National Historic Trail), Outdoor Recreation Act, and the National Historic Preservation Act. National historic landmark and national natural landmark designation for private lands within and outside City of Rocks also provides for NPS technical assistance to landowners to help preserve landmark values. Assistance would be available for all areas within the Reserve.

ROLE OF IDAHO DEPARTMENT OF PARKS AND RECREATION

Based on the cooperative management agreement between the National Park Service and Idaho Department of Parks and Recreation, the role of the department is predominantly one of daily management and administration of the Reserve. Idaho Department of Parks and Recreation provides sufficient state funding as authorized and appropriated by the Idaho State Legislature to assure the management and operation of the Reserve at a comparable level to other units of the Idaho state park system. Because the Reserve is a unit of the national park system, Idaho Department of Parks and Recreation complies with federal resource protection laws and executive orders, and cooperates, participates, and contributes to NPS program implementation at the Reserve in accordance with NPS policies and guidelines. In cooperation with the National Park Service, the Idaho Department of Parks and Recreation develops annual work plans and provides an annual report.

Idaho Department of Parks and Recreation also implements and enforces state statutes, ordinances, rules, and regulations on public lands, and provides administrative and visitor contact services on state-administered land outside the Reserve.

OPERATION PLAN AND GUIDELINES FOR MANAGEMENT

As noted, the “2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)” is the guiding framework for management of the Reserve. Discussions appropriate to this general management plan (GMP) involve funding, facility development, and commercial visitor services.

Funding

Funding for Reserve operations is a shared responsibility between the National Park Service and Idaho Department of Parks and

Recreation. NPS funding is provided annually through congressional appropriations equal to approximately 50% of the total operating costs. IDPR funding is provided annually through departmental appropriations equal to approximately 50% of the total operating cost.

Projects and programs unique to the National Park Service and appropriate to the Reserve are funded in full by the park service to the greatest extent possible. These include cultural and natural resource protection programs, the volunteers-in-the-parks program, the repair and rehabilitation program, the cyclic maintenance program, the fee demonstration program, curatorial and collections management programs, and fire management programs, among others. On-site implementation and management of these programs is the responsibility of Idaho Department of Parks and Recreation, which holds accountability. The National Park Service provides technical support and assistance, and budgetary services and assistance.

Facility Development

Development of facilities outside the Reserve boundary is the primary responsibility of Idaho Department of Parks and Recreation. All new facilities inside the Reserve boundaries such as visitor centers, campgrounds, roads, wayside exhibits, kiosks, restrooms, parking, and trails, are sited and developed in accordance with NPS design guidelines. Planning and development will conform to applicable guidelines, policies, and laws to ensure that natural and cultural resource values are protected.

The Reserve superintendent is responsible for initiating development projects inside the Reserve boundary in accordance with the GMP, development concept plans (DCP), and other approved plans. The National Park Service is responsible for providing technical assistance, plan designs, standards, reviews, and on-site expertise on development projects as stated in the project document.

Commercial Visitor Services

According to the section on “Commercial Uses and Other Activities,” commercial visitor services at the Reserve are the direct responsibility of Idaho Department of Parks and Recreation. All commercial guiding operators have to meet the criteria of the Idaho Outfitters and Guides Licensing Board and the Idaho Parks Board prior to initiating activities within the Reserve. Only those commercial activities that contribute to the understanding, appreciation, and stewardship of the Reserve’s resources and fall within appropriate recreational uses would be permitted, and activities must offer no threat to resources or visitor use. Idaho Department of Parks and Recreation permits business operations or other commercial activities within the boundaries of the Reserve only with the prior approval of the National Park Service. All permits, licenses, or other commercial activities fees collected by Idaho Department of Parks and Recreation would be used at the Reserve for associated programs, operating expenses, or improvement projects directly related to the Reserve.

RELATIONSHIP OF CASTLE ROCKS STATE PARK TO CITY OF ROCKS NATIONAL RESERVE

Administratively, Castle Rocks State Park consists of three named units: the Ranch Unit (1,440 acres), the Administrative Unit (12 acres), and the Smoky Mountain Unit (240 acres leased by Idaho Department of Parks and Recreation from the Bureau of Land Management) (IDAPA Code 67-4212). Together the units comprise 1,692 acres, plus an additional 200-acre conservation easement. The state park units, owned by Idaho Department of Parks and Recreation, receive about 72,000 visitors annually and are still in the development phase: the *Castle Rocks State Park Master Plan* was approved on August 3, 2006 (“Figure 2. Land Ownership and Management”).

The geographic and geologic area referred to as “Castle Rocks” is located in the Ranch Unit one mile northeast of the Reserve. This unit is the main state park area where the public recreates.

The Administrative Unit is situated southeast of the Ranch Unit and east of the Reserve located in the town of Almo. At the Administrative Unit, facilities are shared between Castle Rocks State Park and the Reserve. This includes a visitor center, administrative headquarters, maintenance facility, and employee housing.

The Smoky Mountain Unit is located southwest of the Administrative Unit and east of the Reserve. This unit provides developed camping opportunities for both Castle Rocks State Park and Reserve visitors. The Bureau of Land Management retains management (ownership) of this unit, though Idaho Department of Parks and Recreation has entered into a long-term lease with the bureau through the Recreation and Public Purposes Act program (43 U.S.C. 869 et seq.).

In addition to the developed campground, Idaho Department of Parks and Recreation is also leasing a 120-acre parcel from the Bureau of Land Management at the Smoky Mountain Unit with the intent to develop a permanent visitor center (see figure 2). (This 120-acre parcel is considered part of the 240-acre Smoky Mountain Unit lease.) This proposal was approved in the 2006 *Castle Rocks State Park Master Plan* and the 1996 *City of Rocks National Reserve Comprehensive Management Plan*, Development Concept Plan and Environmental Impact Statement.

Similar to the Reserve, the most popular recreation at Castle Rocks State Park is climbing, but the area also offers other opportunities, such as horseback riding, birding, mountain biking, hiking, hunting, picnicking, and photography.

PURPOSE OF THE GENERAL MANAGEMENT PLAN

Upon approval, the GMP will set the management philosophy for City of Rocks National Reserve for the next 15 to 20 years. It provides an updated framework for continued management of the Reserve by the National Park Service and Idaho Department of Parks and Recreation. The purposes of this GMP are as follows:

- Updates the 1996 *City of Rocks National Reserve Comprehensive Management Plan*
- Fulfills the requirements of the National Parks and Recreation Act (Public Law 95-625 1978), the General Authorities Act (Redwood Act Amendment 1978), and NPS Management Policies 2006 (NPS 2006a), which require all national park units to have general management plans and to regularly update these plans
- Describes the purpose, significance, special mandates, fundamental resources and values, and primary interpretive themes for City of Rocks National Reserve through foundation planning (see “Chapter 2: Foundation for Planning and Management”)
- Clearly defines resource conditions, visitor uses, and experiences to be achieved within the Reserve
- Provides a framework for Reserve managers to guide decisions about protecting Reserve resources and providing high-quality visitor experiences through management of visitor activities and facilities
- Develops a foundation for decision-making in consultation with interested stakeholders and NPS and IDPR leadership, based on analysis of the benefits, impacts, and costs of the alternatives

Legislation establishing the National Park Service as an agency (Organic Act of 1916) and the range of laws governing NPS management provide the fundamental direction for administration of the Reserve and other units and programs of the national park system. This GMP is intended to build on these laws and the legislation that established and governs the Reserve in order to provide a vision for the future.

For a list on the laws and policies directing management actions, see “Desired Conditions and Potential Management Strategies Derived from Law, Regulations, and Policies” at the end of chapter 2, and “Appendix B: Pertinent Laws, Policies, and Procedures.”



Two hikers looking out from Indian Grove Overlook with wildflowers.

This draft GMP is accompanied by a draft EIS to assess its potential environmental impacts as required by the National Environmental Policy Act (NEPA).

The GMP analyzes alternatives for addressing desired future conditions that are not already mandated by law and policy and that must be determined through a planning process. Where law, policy, and regulations do not provide clear guidance, management decisions will be based on the GMP, public concerns, and analysis of impacts of alternative courses of action, including long-term operational costs. Successful implementation of the GMP will result in the long-term preservation of natural and cultural resources and an enhanced visitor experience.

Actions directed by general management plans or in subsequent implementation plans are accomplished over time. Budget restrictions, requirements for additional data or regulatory compliance, and competing priorities may delay implementation of many actions. Major or especially costly actions could be implemented 10 years or more into the future.

The GMP does not describe how particular programs or projects will be implemented. Those decisions will be deferred to more detailed implementation planning, which will follow the broad, comprehensive planning presented in this GMP/EIS. All future plans would be consistent with the approved GMP.

NEED FOR THE GENERAL MANAGEMENT PLAN

The current 1996 comprehensive management plan no longer provides adequate guidance to address the policy and operational issues now facing the Reserve. Many of the actions in the comprehensive management plan have been implemented, but other actions are either outdated, cost-prohibitive, or cannot be executed for other reasons, including current property ownership.

The National Parks and Recreation Act of 1978 and the Redwood Amendment of 1978 require the preparation and timely revision of general management plans for each unit of the national park system. The Reserve’s operation plan and guidelines for management states that the GMP/EIS be kept current and revised or amended as necessary.

In 1996 when the original comprehensive management plan was produced, approximately 50% of the land within the Reserve was in public ownership. Today, that percentage is approximately 70%, resulting in additional planning opportunities for newly acquired parcels. A land protection plan is currently underway and would follow the publication of this draft GMP. The land protection plan will define those land interests that are most important to fulfilling the purpose of

the Reserve, the resource protection reasons for acquisition, and the priority of acquisition, as developed in consultation with the Reserve superintendent. Any lands proposed for acquisition would be by willing seller only, and in full accord with Reserve legislation and NPS policies.

Visitation within the Reserve has risen from approximately 81,000 visitors in 1993 to more than 99,439 in 2011 (NPS 2012h) (see “Chapter 4: Affected Environment,” table 31). Population growth in the nearby metropolitan areas of Salt Lake City and the Pocatello/Idaho Falls area is expected to increase in the next 20 years, potentially creating more visitation and use within the Reserve. Because of increased visitation, there is a need to evaluate existing facilities. The temporary visitor center serving both the Reserve and Castle Rocks State Park is located in a 100-year-old house that is inadequate to accommodate the use of the thousands of visitors that pass through for orientation and information.

Campsites within the Reserve existed when the Reserve was established, and though many campsites at that time were closed or rehabilitated, there are lingering issues that need to be addressed, such as campsites that conflict with day use activities, safety and visual issues along the road where some campsites are located, and the need for additional toilets. Most campsites in the Reserve are located along the southern and western rim of Circle Creek Basin (known as “the Rim”). These sites offer prime views of the pinnacles comprising the “Inner City” as well as more expansive views of Granite Ridge that completes the northern encirclement of the basin. As part of this GMP, a development concept plan has been prepared to help address these specific issues, including comprehensive assessment of the trail system with associated parking, picnicking, and trailheads (“Appendix D: *Rim Development Concept Plan for City of*



Equestrians tour the Reserve.

Rocks National Reserve”) (see DCP recommendations in “Chapter 3: Alternatives”). Development concept plans are drawings and narrative that show in a conceptual way how actions in a general management plan would be developed for specific areas. NEPA analysis for the Rim development concept plan is part of this GMP. The Circle Creek Basin area associated with the “rim” can be located in “Figure 2. Land Ownership and Management.”

Intensive use of the Reserve during some seasons has caused parking conflicts, especially associated with horse trailer and large recreational vehicle (RV) parking. Determining how to continue to accommodate these user groups is important.

Several plans completed since the 1996 comprehensive management plan are now due for revision, and additional plans are needed to better inform Reserve management. Among these plans are the grazing management plan, fire management plan and vegetation management plan. The GMP would provide additional and needed direction for their development.

Though the Reserve is small in size, a wilderness eligibility determination is a requirement of NPS management policies. Determining wilderness eligibility is an issue that needs to be addressed in this GMP (“Appendix C: City of Rocks National Reserve Wilderness Eligibility Assessment”).

At present, management zoning for the Reserve uses both zones and subzones and covers both private and public land. Many of the prescriptions for these are overlapping or contradictory and at times confusing for Reserve managers. A section of the Reserve at the eastern boundary was not zoned on the 1996 management zoning map and needs to be corrected.

A further discussion of these and other issues can be found in “Planning Issues and Concerns” in this chapter.

NATIONAL PARKS AND RECREATION ACT AND THE REDWOOD AMENDMENT OF 1978

The National Parks and Recreation Act of 1978 (Public Law 95-625) and the Redwood Amendment of 1978 (Public Law 95-250 Sec 101 (6) [b]) require the preparation and timely revision of general management plans for each unit of the national park system. NPS management policies call for each general management plan to “set forth a management concept for the park [and] establish a role for the unit within the context of regional trends and plans for conservation, recreation, transportation, economic development and other regional issues.” Congress has also specifically directed the National Park Service to consider, as part of the planning process, the following elements:

“General management plans for each unit shall include, but not be limited to:

- Measures for the preservation of the area’s resources;
- Indications of types and general intensities of development (including visitor circulation and transportation patterns, systems and modes) associated with public enjoyment and use of the area, including general locations, timing of implementation, and anticipated costs;
- Identification of an implementation commitment for visitor carrying capacities for all areas of the unit; and
- Indications of potential modifications to the external boundaries of the unit, and the reasons therefore (16 U.S.C. 1a-7[b]).”

According to the NPS *Program Standards: Park Planning*, Director’s Orders 2, and NPS *Management Policies 2006*, general management plans meet these requirements by describing the desired resource conditions and visitor

experiences to be achieved and maintained in each particular area of the park; identifying the kinds and levels of resource management, visitor use management, development, and access appropriate to the desired conditions; setting measurable standards for user capacity; and addressing potential boundary modifications.

COOPERATING AGENCIES

Under the National Environmental Policy Act, a “cooperating agency” is defined as

any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment.

State and local agencies and American Indian tribes that meet the above-mentioned criteria may also become cooperating agencies by formal agreement (Sec. 1508.5 CEQ regulations).

In August 2012, a memorandum of understanding was signed between the National Park Service and the Bureau of Land Management to enter into a cooperating agency status (Sec. 1501.6 CEQ regulations) to emphasize agency cooperation in the NEPA process. The purpose of the memorandum was to provide a framework for cooperation to facilitate the timely completion of the GMP and associated plans as needed. An advance copy of the draft GMP/EIS was submitted to the Bureau of Land Management in December 2012 for review and comment. Extensive comments were received from the bureau and changes were incorporated into this document.

The National Park Service and Idaho Department of Parks and Recreation operate the Reserve under a long-term cooperative agreement that outlines their roles and responsibilities with regard to planning and management. Therefore, a cooperating agency agreement was not entered into between the two agencies for the purpose of developing this GMP.

PLANNING ISSUES AND CONCERNS

The planning team, along with representatives from other agencies, organizations and interested members of the public, identified various issues and concerns about City of Rocks National Reserve during this planning process. This information assisted in determining the scope, or range of issues, to be addressed by this GMP/EIS.

The result of the GMP will be to provide long-term guidance for the issues related to management of resources, visitor use (including recreation, interpretation, and education), transportation (including access and circulation), Reserve facilities and operations, interagency coordination, partnerships, climate change, and boundary issues.

CULTURAL RESOURCE PROTECTION AND PRESERVATION

The Reserve was established “to preserve and protect the significant historical and cultural resources” related to the California Trail, which passed through the City of Rocks from 1843 to 1882. These resources include the emigrant inscriptions, trail ruts, and landscape characteristics that contributed to City of Rocks’ prominence along the California Trail. While the Reserve manages the California Trail resources, the NPS National Trails Intermountain Region serves as trail administrator. High-potential sites and trail segments are the most important areas of a national historic trail for protection. Two high-potential sites, both listed in the National Register of Historic Places (NRHP), and one high-potential segment (Curlew Valley to the Salt Lake Alternate, or Salt Lake Cutoff), are located along the California Trail within the Reserve boundary. These are described in more detail under the California National Historic Trail comprehensive management and use plan description in “Chapter 4: The Affected Environment.”

The Reserve also manages other cultural resources related to American Indian use before the California Trail era, and homesteading and ranching which post-date the California Trail. These resources include archeological sites and remnants of homesteads, as well as archival and museum objects. The GMP will explore various preservation treatment options, management strategies, and design guidelines for the protection of a wide variety of cultural resources.

Some of the cultural sites, such as the Kelton-Boise stage station, are located on private land within the Reserve and contain important historic remnants of the California Trail or homesteading period. Managing cultural resources on both private and public land presents challenges, such as protection from vandalism, deterioration from weathering, and impacts from visitor use and livestock grazing.

NATURAL RESOURCE PROTECTION

The Reserve is part of a larger biogeographic crossroads—an area where many different habitat types and ranges meet. As a result, it is home to a variety of plant and animal life, including several species at the edge of their range. Invasive species, visitor activities, and grazing can impact these resources. The GMP will explore management actions for natural resource protection.

In addition, the GMP will reevaluate management of the City of Rocks Research Natural Area (RNA). This 312-acre area within the Reserve was designated for its outstanding natural features, natural processes, natural diversity, and ecological values. It contains unique geologic formations and the northern limit of the pinyon-juniper forest type in North America. The designation and boundary was inherited from the Bureau of Land Management and U.S. Forest Service when the Reserve was established. As part of the GMP process, agency information on the Research Natural Area and the current status of its resources will be reviewed. In addition, the City of Rocks Research Natural Area has the opportunity to

provide student and professional education, to serve as a baseline for measuring long-term ecological changes, and to serve as a control area for comparing results from manipulative research conducted elsewhere. A determination will be made about which recreational uses, if any, might be appropriate within the Research Natural Area, whether the RNA designation should remain, and whether other areas of the Reserve with biological diversity could also be considered for designation as research natural areas or inclusion in the current Research Natural Area.



Cattle grazing is a special use permitted at the Reserve.

LIVESTOCK GRAZING

The Reserve differs from most traditional national park system units in terms of allowing certain traditional ranching uses to continue, provided they are consistent with the obligation to protect natural and cultural resources.

NPS management policies allow grazing where it is specifically authorized by federal law or is required to maintain a historic scene, and where it does not cause unacceptable impacts on park resources or values. Although grazing was not specifically identified in the Reserve's enabling legislation, and is prohibited in most national park units, section 202(a) of the enabling legislation required that the Reserve's management plan be crafted by the National Park Service in cooperating with appropriate federal and state agencies, local government and local residents, as a distinguishing feature of the Reserve. Congress indicated that the plan for City of Rocks should identify which zones could most appropriately be devoted to "private use

subject to appropriate local ordinances designed to protect the historic rural setting" existing at the time the Reserve was established. In addition, cosponsors of the legislation indicated that grazing "in areas that are not in high public use" would be one of the continuing private uses of land within the Reserve (Back 1991).

Private grazing permits for seven allotments on public lands are currently in effect on a large proportion of public lands in the Reserve. Permits for these allotments are currently reviewed on an annual basis. The 1996 grazing management plan established the 1991 animal unit month (AUM) total for the Reserve as the maximum level of use for range use. An animal unit month is grazing by one cow/calf pair for a month. Grazing is not permitted in the Research Natural Area and continues to be removed from wetlands and riparian areas.

In 1988, the year the 14,407-acre Reserve was established, approximately 6,400 acres inside the boundary designated by Congress were in private ownership and used primarily for cattle grazing. Today the total acreage of private lands has been reduced to 4,087 acres (31%) with 9,680 acres in public ownership. The GMP will present various alternatives for grazing within the management alternatives, based on the alternative concepts and how management zones are applied for each alternative. An updated grazing management plan will be tiered from the GMP and provide more detailed guidance on grazing management, including AUM levels.

SOUNDSCAPE AND NATURAL QUIET

Natural sounds are a fundamental resource of the Reserve, also referred to as the "Silent City of Rocks." Military and commercial overflights, especially at night, have an impact on both visitor experience and wildlife. Reserve operations and visitor activities can also contribute to the deterioration of the natural soundscape. Baseline acoustical monitoring has recently been conducted to measure and record the sounds of the Reserve. The GMP will present recommendations to maintain natural sounds and natural quiet in the Reserve.

CLIMATE AND AIR QUALITY

Air quality in and around southern Idaho is some of the best in the continental United States. Pristine airsheds are a fundamental resource of the Reserve and visitor surveys indicate that air quality and scenic vistas are among the most highly valued characteristics of the Reserve. The GMP will evaluate ways to protect the airsheds and associated views, particularly those associated with the California National Historic Trail that bisects the Reserve.

The effects of global climate change may include changes in temperature, precipitation, evaporation and snowpack rate, local weather patterns, wildfire frequency, and plant and animal communities. Planning and management actions will allow the Reserve to minimize its greenhouse gas emissions, adapt to climate change, and interpret changing conditions. The GMP will provide guidance on how the Reserve will assess, respond to, and interpret the impacts of global climate change on both natural and cultural resources, as well as operations and visitor services.

LIGHTSCAPE

Southern Idaho is also one of the best places in the United States for viewing night skies. The GMP will recommend ways to protect and restore the scenic and ecological qualities of a naturally dark environment in and around the Reserve.

OPERATIONS AND FACILITIES

The Reserve has an ongoing need for additional staffing, funding, and facilities. A visitor center, as proposed in the 1996 comprehensive management plan and the *Castle Rocks State Park Master Plan*, has yet to be constructed on state-leased BLM land near the Reserve's Almo entrance. The potential to develop a visitor center to meet multiple agencies' needs will be explored. In addition, there are currently insufficient options for seasonal and permanent housing on either Reserve-administered land or in the local (town of Almo) area. The GMP

will provide guidance for the Reserve regarding housing.

VISITOR EXPERIENCE

Visitors come to the Reserve to enjoy the scenery and to climb, hike, and recreate in other ways, including equestrian use. Visitation to the Reserve is increasing, and the demographics of visitors are trending to younger adult visitors (25–35 years old) and smaller group sizes. As the visiting population shifts, their interests and preferred activities may also change. The GMP will use current visitor survey data to comprehensively address available visitor facilities, activities, and programs. Day use and camping will be evaluated, taking into consideration camping opportunities on adjacent public and private lands. A comprehensive look at the trail system with associated parking, picnicking, and trailheads will be completed as part of the GMP. The GMP will also provide guidance on other recreational uses, such as climbing, hunting, and equestrian use, including locating equestrian staging areas and any related facilities in response to current access and safety concerns.

EVALUATION OF BOUNDARIES

The National Parks and Recreation Act of 1978, as amended, requires that general management plans consider the adequacy of existing boundaries. When the Reserve was established, it was assumed that the private lands and associated ranching within the boundary would remain part of the Reserve. Since then, many of the landowners have opted to sell their land to the National Park Service. Planning for these acquired lands will be addressed in the GMP. The GMP will also determine if any changes to the boundary are appropriate based on resource protection, visitor use, and land management needs. See "Appendix E: Analysis of Boundary Adjustment and Land Protection," for a discussion of the criteria used to assess boundary modifications.

The national historic landmark and national natural landmark boundaries that overlay the

Reserve are configured differently from each other and neither covers the entire Reserve (“Figure 4: Designations”). The Cassia County Historic Preservation Zone does not cover the entire Reserve, and therefore may not fully protect the cultural and natural resources. This presents some management challenges. The GMP will consider recommendations for these designations to address inconsistencies and gaps in resource protection.

TRANSPORTATION AND CIRCULATION

Access and transportation within and through the Reserve includes use by motorized vehicles, horses, bicycles, and people on foot. Parking is available in both day use and overnight camping areas, but overflow parking often takes place along the side of roads, creating safety concerns, vegetation impacts, and erosion issues. Staging areas for equestrian use also present similar problems. Some visitors merely pass through the Reserve on scenic drives along the City of Rocks Road. The GMP will consider all forms of motorized and nonmotorized transportation and evaluate circulation patterns, parking, and other transportation options.

City of Rocks Back Country Byway runs through the Reserve along the City of Rocks Road and Twin Sisters Road (a byway spur). The byway is experiencing erosion due to climatic conditions and its alignment on disintegrating granite soils. The roads are currently managed by Cassia County, which poses some challenges for Reserve staff when maintenance is needed. The GMP will also examine an array of potential management options for the City of Rocks Back Country Byway and make recommendations for byway management.

ISSUES AND CONCERNS NOT ADDRESSED

Not all of the issues or concerns raised by the public are included in this GMP. Issues that were raised by the public were not addressed if they are already prescribed by law, regulation, or policy; if they would be in violation of law,

regulation, or policy; or if they were at a level that was too detailed for a general management plan and are more appropriately addressed in subsequent planning documents.

IMPACT TOPICS: RESOURCES AND VALUES AT STAKE IN THE PLANNING PROCESS

Impact topics allow comparison of the environmental consequences of implementing each alternative. These impact topics were identified based on federal laws and other legal requirements, the Council on Environmental Quality’s guidelines for implementing the National Environmental Policy Act, NPS management policies, subject-matter expertise and knowledge of limited or easily impacted resources, and issues and concerns expressed by other agencies or members of the public during scoping (“Appendix B: Pertinent Laws, Policies, and Procedures”). Impact topics were developed to focus the environmental analysis and to ensure that alternatives were evaluated against relevant topics.

The planning team consolidated the issues and selected the impact topics described below to facilitate the analysis of environmental consequences. A brief rationale for the selection of the impact topics that will be analyzed in the environmental consequences chapter is given below, as well as a more detailed justification for dismissing other topics from further consideration.



Rock arches.

IMPACT TOPICS CONSIDERED AND ANALYZED

Impacts of each action and alternative have been analyzed for the topics discussed below. These impact topics focus the discussion on comparing the environmental impacts, either beneficially or adversely, among alternatives on affected resources. The National Environmental Policy Act calls for examination of the impacts on the components of affected ecosystems.

Physical Resources

Land Use

NPS *Management Policies 2006* provides direction for protection of lands and resources within park units, acquisition of nonfederal lands that are within park units, and cooperation with agencies, tribes, and private property owners to provide appropriate protection measures. Land use refers to the general characteristics of how land is allocated among various administrative, preservation, recreational, and development needs. Currently, the Reserve's 1996 comprehensive management plan provides the framework for the types of land uses allowed within the project area. Land use would change as a result of the implementation of the action alternatives because the GMP would rezone areas within the Reserve and because some undeveloped areas would be developed. Therefore, land use is included as an impact topic.

Air Quality

The Clean Air Act of 1963, as amended, was established to promote public health and welfare by protecting and enhancing the nation's air quality (42 USC 7401 et seq., PL 88-206). The act establishes specific programs that provide special protection for air resources and air quality-related values associated with national park units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air quality standards.

City of Rocks National Reserve is a Class II area under the Clean Air Act. The closest Class I area is Craters of the Moon National Wilderness

Area. Class II areas allow only moderate increases in certain air pollutants, while Class I areas (primarily large national parks and wilderness areas) are afforded the highest degree of protection, meaning that very little additional deterioration of air quality is permitted. The act states that park managers have an affirmative responsibility to protect air quality-related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse air pollution impacts (EPA 2000). Air quality is included as an impact topic because proposed actions under the alternatives could affect air quality and because the GMP, as with the Reserve's 1996 comprehensive management plan, would encourage the state to change the area's designation from Class II to Class I.



View of the landscape from north Circle Creek Basin.

Lightscapes

NPS *Management Policies 2006* states that “the Service will preserve, to the greatest extent possible, the natural lightscapes of parks, which are natural resources and values that exist in the absence of human-caused light.” The stars, planets, and moon—visible during clear nights—have a significant impact on people as well as on many other species, including birds, terrestrial predators, and prey. Lightscapes have been included as an impact topic because the proposed actions under the alternatives could introduce or increase artificial light sources in the environment beyond current or historic levels, which, without mitigation, could affect the ability to see natural features visible on clear nights.

Soundscapes

A soundscape is defined as the total ambient acoustic environment associated with an area. It may be composed of both natural and human-made sounds. In a high noise environment, natural ambient sounds may be masked by other noise sources. Natural quiet is another term for characterizing the expected natural soundscape.

Park soundscape resources encompass all of the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationship among natural sounds of different frequencies and volumes in the park (NPS 2006a). NPS Director's Order 47: Soundscape Preservation and Noise Management defines operational policies that will protect, maintain, or restore the natural soundscape (NPS 2000). Natural sounds are part of the park environment, are vital to the functioning of ecosystems, and may also be valuable indicators of ecosystem health. Soundscapes have been included as an impact topic because the proposed actions under the alternatives, such as construction of facilities and new trails, could affect natural quiet.

Soils

NPS *Management Policies 2006* requires the National Park Service to understand, preserve, and prevent—to the extent possible—the unnatural erosion, physical removal, or contamination of the soil. The alternatives include ground disturbance from construction and grazing of previously disturbed and undisturbed soils. Loss of vegetation from construction and grazing would also probably increase the potential for erosion and cause additional alteration of soil properties. Therefore, soils are included as an impact topic.

Water Resources

The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act (33 USC 1251 et seq., PL 92-500 and PL 95-217), is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, to enhance the quality of water resources, and to prevent, control, and abate

water pollution. NPS *Management Policies 2006* provides direction for the preservation, use, and quality of water in national parks.

Water Quality

Section 401 of the Clean Water Act, as well as NPS policy, requires analysis of impacts on water quality. Construction and grazing activities may increase the potential for erosion and sedimentation that can adversely impact water quality. Because of this, water quality is addressed.

Water Quantity

Because there are replacement facilities proposed in some alternatives, there would probably be some changes in the use of water associated with the implementation of the alternatives. Some uses of water, such as during road construction, would be short-term and negligible. Other uses, such as grazing, are consumptive and shift existing water use from one location to another. Therefore, water quantity has been included as an impact topic.

Wetlands

Executive Order 11990 requires that impacts to wetlands be addressed. Section 404 of the Clean Water Act requires federal agencies to avoid, minimize, and mitigate impacts to wetlands. Executive Order 11990, NPS *Management Policies 2006*, and Director's Order 77-1: Wetland Protection (NPS 2002b) direct that wetlands be protected and that wetlands and wetland functions and values be preserved. They further advise that direct or indirect impacts on wetlands be avoided whenever there are practicable alternatives. Although the 1996 comprehensive management plan called for wetlands to be fenced out of grazing areas, this process is still ongoing; therefore, wetlands are addressed as an impact topic.

Biological Resources

Vegetation

NPS *Management Policies 2006* calls for protecting the natural abundance and diversity of park native species and communities, including avoiding, minimizing, or mitigating potential impacts from proposed projects. The

alternatives are likely to result in tree removal and other vegetation loss as well as enhancement or restoration of vegetation. Therefore, vegetation is included as an impact topic.

Wildlife

NPS policy is to protect the natural abundance and diversity of park native species and communities, including avoiding, minimizing, or mitigating potential impacts from proposed projects. More than 190 native species of terrestrial and aquatic vertebrates have been recorded in the park, including 142 species of birds, 35 mammals, 11 reptiles, and 3 amphibians. Many wildlife species may reside in or near the project area. The alternatives will involve impacts on wildlife such as the removal of wildlife habitat and increased noise levels caused by construction activities. The loss or alteration of habitat has a direct effect on wildlife, which is often greatest when nesting/denning and foraging areas are affected. Therefore, wildlife is included as an impact topic.

Special Status Species

The federal Endangered Species Act requires an examination of impacts on all federally listed threatened or endangered species. NPS *Management Policies 2006* calls for an analysis of impacts to state-listed threatened, endangered, candidate, rare, declining, and sensitive species; and federal candidate species. Under the Endangered Species Act, the National Park Service is mandated to promote the conservation of all federally listed threatened and endangered species and their critical habitats within the Reserve. Ongoing informal consultation with the U.S. Fish and Wildlife Service and the Idaho Department of Fish and Game (IDFG) has identified rare, threatened, and endangered species that occur in the Reserve; therefore, special status species are included as an impact topic.

Cultural Resources

Pre-contact and Historic Archeological Resources / Historic Structures / Cultural Landscapes

Consideration of the impacts on historic properties is required under provisions of section 106 of the 1966 National Historic Preservation Act (NHPA), as amended, and the 2008 NPS Programmatic Agreement among the National Park Service, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation. It is also required under NPS *Management Policies 2006*. Conformance with the Archaeological Resources Protection Act (ARPA) in protecting known or undiscovered archeological resources is also required by the National Historic Preservation Act. *Management Policies 2006* calls for ongoing inventory and analysis of the significance of archeological resources found within parks.

Federal land managing agencies are required to consider the effects proposed actions may have on properties listed in, or eligible for inclusion in, the National Register of Historic Places and to allow the Advisory Council on Historic Preservation a reasonable opportunity to comment. Agencies are required to consult with the state historic preservation office, tribes, and other federal, state, and local, agencies and organizations; identify historic properties; assess adverse effects on historic properties; and negate, minimize, or mitigate adverse effects on historic properties prior to implementation of any federal or federally assisted undertaking (36 CFR 800). Therefore historic structures and cultural landscapes are included as impact topics.

The National Park Service is delegated monitoring and technical assistance responsibilities by Congress to ensure that national historic landmarks retain the highest level of integrity (36 CFR 65.7). There are special requirements that apply to national historic landmarks pursuant to section 110 of the National Historic Preservation Act and

section 800.10 of the regulations: 16 USC §470h-2(f) mandates that “[P]rior to approval of any Federal undertaking which may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark.”

There are 81 archeological sites recorded in the Reserve. Of these sites, 36 are historic. The others are prehistoric. Although archeological surveys have been conducted in many of the proposed project areas, there is a potential for previously unknown archeological resources to be found. Therefore, American Indian and historic archeological resources are included as an impact topic.

Recreational and Social Resources

Visitor Experience

Providing for the enjoyment of national park system resources is one of the foundations of the NPS Organic Act. The Organic Act directs the National Park Service to promote and regulate the use of national parks to conserve resources and to provide for their enjoyment by existing and future generations. In accordance with this act, NPS *Management Policies 2006* and Director’s Order 17: Tourism (NPS 1999a) identify visitor use patterns and the desired visitor carrying capacity and allow for appropriate recreational activities within park units. Depending on the selected alternative, a variety of impacts on visitor use may occur. The impacts considered in this section related to visitor experience include access and transportation, visitor use opportunities, interpretation and education, safety, and scenic resources.

Park and Partner Operations

Environmental documents often consider impacts on park operations and visitor services in order to describe how proposed actions would change park management strategies and methods and disclose the additional costs (including staffing) that are associated with the proposal. The alternatives would affect a variety

of ongoing and proposed new Reserve operations as well the ability of the Reserve to maintain its infrastructure and conduct park operations. Therefore, park operations are included as an impact topic.

Socioeconomics

Socioeconomic impact analysis is required, as appropriate, under the National Environmental Policy Act and NPS *Management Policies 2006* pertaining to gateway communities. The local and regional economy near the park is dependent on tourism and resource use. Agriculture, manufacturing, professional services, and education also contribute to regional economies. Therefore, socioeconomics is included as an impact topic.

Grazing and Livestock Trailing

This impact topic has been added to respond to public concerns on the preliminary alternatives regarding the effect of the GMP alternatives on traditional uses, such as grazing and livestock trailing.

Climate Change and Sustainability

The long-term effects of global climate change are uncertain; however, it is clear that the earth is experiencing a warming trend that affects global weather patterns, wildfire frequency and intensity, the amount and timing of rainfall, drought conditions, and invasive species ranges. At the Reserve, changes such as these may affect the distribution of both native and nonnative plant and wildlife populations, and may also have implications for cultural resources, visitor use, and operations. The NPS Climate Change Response Strategy and its implementing plan, the NPS Climate Change Action Plan (2012–2014) provide systemwide guidance for NPS response to climate change. In this GMP, climate change impacts are discussed in the context of cumulative impacts on air quality; water resources; vegetation; wildlife; special status species; cultural resources, including cultural landscapes; visitor experience, including health and safety; and visitor use opportunities.

REQUIRED ANALYSIS TOPICS FOR ENVIRONMENTAL IMPACT STATEMENTS

The following topics are required for analysis in environmental impact statements. Analysis of such impacts for this draft GMP can be found in “Chapter 5: Environmental Consequences.”

Unavoidable Adverse Impacts

Unavoidable adverse impacts are moderate to major impacts that cannot be avoided.

Relationship between Short-term Use of the Environment and Maintenance and Enhancement of Long-term Productivity

This impact topic is meant to describe the extent to which the alternatives use renewable vs. nonrenewable resources.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a limited time.

IMPACT TOPICS DISMISSED FROM FURTHER CONSIDERATION

The topics listed below either would not be affected by, or would be affected only negligibly by the alternatives evaluated in this document. Therefore, these topics have been dismissed from further analysis. Negligible effects are localized effects that would not be detectable over existing conditions. Many of these effects would be short-term and would occur only as a result of construction activities. A detailed rationale for dismissing these and other impact topics is given below.

Geologic Hazards

Although geologic hazards, including earthquakes, rock fall, unstable slopes, avalanches, and others, are present within City of Rocks, the proposed alternatives would have no measurable effects on increasing or reducing impacts from or exposure to geologic hazards. Therefore, geologic hazards have been dismissed as an impact topic.

Floodplains

Executive Order 11988, “Floodplain Management,” requires an examination of impacts on floodplains and the potential risk involved in placing facilities within floodplains. NPS *Management Policies 2006*; *General Management Planning Dynamic Sourcebook (NPS 2005b)*; *Director’s Order 12: Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001); and *Director’s Order 77-2: Floodplain Management* (NPS 2003) provide guidelines for proposals that occur in floodplains. Executive Order 11988 requires that impacts on floodplains, if present, be addressed. Because no actions are proposed in or currently occur in floodplains, this topic has been dismissed from further analysis.

No floodplains have been mapped along streams in the Reserve. Because all of the streams are high- to medium-gradient streams of relatively small size, it was assumed that 100- to 500-year floodplains do not extend far beyond the riparian areas associated with the streams. Consequently, City of Rocks was zoned as an area of minimal flooding by the Federal Emergency Management Agency. The creeks and drainages of the Reserve are subject to flash flooding during summer months when thunderstorms can produce large quantities of precipitation in localized areas. The hazards from these summer floods are considered minimal.

Water Rights

City of Rocks is entitled to federal reserved water rights on the portion of the Reserve acquired from the Sawtooth National Forest, and the amount claimed coincides with what was the minimum necessary for national forest purposes. The Reserve’s enabling legislation provided for the federally reserved water rights for the former USFS portion to be transferred to City of Rocks National Reserve. However, it excluded the creation of new federally reserved water rights for national park purposes. Where Reserve rights held by the National Park Service were insufficient, appropriative water rights were acquired by the state.

The National Park Service has received partial decrees for water right claims as part of the Snake River Basin Adjudication. During this process, the National Park Service and Idaho Department of Parks and Recreation filed for water rights within the Reserve for various purposes associated with its operation. The National Park Service was granted 10 water rights, including a federal reserved water right for groundwater withdrawn from the well at the crest of the Emory Canyon Road. Also, the Idaho Department of Parks and Recreation has 2 water rights and the Bureau of Land Management has 1 water right within the Reserve. In addition, there are 15 privately held water rights within the Reserve boundaries.



Cattle driving is a seasonal sight at the Reserve.

As land uses change and/or grazing is reduced in the Reserve over the lifetime of this plan, it may be that some water rights will not be used for the purposes described in the right, or not be used at all. If a change in use occurs, then the appropriate change applications would be filed with the State of Idaho or the rights would be surplussed. If the Reserve were to acquire lands at any point in the future, evaluation of water rights would also be included in any proposed transactions and, if they are needed, would be completed before the transaction is executed.

Traditional Cultural (Ethnographic) Resources
NPS *Management Policies 2006* and “NPS-28 Cultural Resource Management Guideline” direct parks to consider potential impacts of planned actions on cultural resources, including ethnographic resources. The Reserve and surrounding area have a history of habitation and resource use by prehistoric and

contemporary American Indians. Analysis of impacts on known resources is important under the National Historic Preservation Act and other laws, including the Native American Graves Protection and Repatriation Act, American Indian Religious Freedom Act, and Executive Order 13007, “Indian Sacred Sites.” The National Park Service defines American Indian traditional cultural (ethnographic) resources as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (NPS 2006a). Traditional cultural properties are ethnographic resources listed in or eligible for the National Register of Historic Places. Known ethnographic resources in the vicinity of the Reserve would be avoided by actions called for in this GMP. Therefore, there would be no or negligible effects on ethnographic resources. As with other unknown (undiscovered) cultural resources, if these were later found within a project area, the preferred course of action would be to avoid impacts by relocating the proposed management action. (See archeological resources mitigation measures.)

American Indian Religious Freedom Act

To comply with the American Indian Religious Freedom Act, federal agencies must consider the effects of their actions on American Indian traditional religious practices. Based on analysis in the areas of potential effect, there are no currently known traditional or religious use areas within the proposed project area. In addition, there are no known Indian sacred sites that would require compliance with Executive Order 13007, “Indian Sacred Sites” (61 FR 26771, 42 USC 1996).

Museum Collections

NPS *Management Policies 2006*, Director’s Order 24: NPS Museum Collections Management, the NPS Museum Handbook, and cultural resources laws identify the need to evaluate effects on museum collections, if applicable. Requirements for proper management of federal archeological collections and associated records are defined in 36 CFR 79. Museum collections would not be

affected by the proposed project, except by the potential addition of material to the collections, if any is found.

As provided for in the Cooperative Agreement between the NPS and IDPR for management of the Reserve, IDPR staff manages the Reserve to NPS standards, including the handling of museum collections. Artifacts and natural history specimens collected from Section 36 (IDPR-owned land) are owned by IDPR but are loaned to NPS, housed at the Hagerman Fossil Beds National Monument collections facility, and managed by NPS along with collections recovered from NPS-owned land. Artifacts found on private property within the Reserve belong to the property owner unless they are donated to IDPR or NPS. Should a cultural resource survey on private property be necessary, an agreement would be reached that any material collected would be donated to the NPS or IDPR for inclusion in the NPS or IDPR museum collection. Collections from Castle Rocks State Park are also housed and managed by NPS at the Hagerman Fossil Beds National Monument collections facility, per an agreement between the Idaho State Archeologist, Hagerman Fossil Beds National Monument, and IDPR.

Historic Structures

The Reserve contains some structures associated with historic homesteading and mining. However, a number of these are located on private land, and those that are within the Reserve on publicly owned land are not eligible for listing in the National Register of Historic Places. While the visitor center is located in a 1912 building, the house that the visitor center occupies is not eligible for NRHP status. Impacts from reconfiguration of the visitor center are discussed under “Visitor Experience.”

Wilderness

NPS wilderness management policies are based on provisions of the 1916 NPS Organic Act, the Wilderness Act (1964), and legislation establishing individual units of the national park system. These policies establish consistent direction for the preservation, management, and use of wilderness, and they prohibit the

construction of roads, buildings, and other man-made improvements, as well as the use of mechanized transportation in wilderness. All park management activities proposed within wilderness are subject to review following the minimum requirement concept and decision guidelines. The public purpose of wilderness in national parks includes the preservation of wilderness character and wilderness resources in an unimpaired condition, and provides for recreational, scenic, scientific, educational, conservation, and historical use.

The Reserve wilderness eligibility assessment approved by the NPS Director on April 19, 2012, determined that lands within the Reserve boundary do not meet the requirements necessary to qualify for the congressionally designated national wilderness preservation system. Among the reasons for this were the inability to provide complete solitude, and the presence of human-made intrusions. Although Reserve lands alone do not meet the eligibility criteria, they could contribute to a larger area of potential wilderness if the Sawtooth National Forest were to reconsider its management prescription of inventoried roadless areas immediately north of the Reserve. The Graham Creek Study Area will continue to be managed in accordance with the NPS Organic Act of 1916. Because there is no wilderness in the Reserve, this topic was dismissed from further analysis (see “Appendix C: City of Rocks National Reserve Wilderness Eligibility Assessment”).

Prime and Unique Farmlands

The Farmland Protection Policy Act was implemented to preserve and protect the dwindling supply of farmland in the nation. In 1980, the Council on Environmental Quality (CEQ) directed that federal agencies assess the effects of their actions on farmlands classified as prime or unique by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service. Prime farmland, as defined by the department, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It may include cultivated land, pastureland,

forestland, or any other type of land that is not considered an urban or built-up land or water areas. In prime farmland areas, the soil quality, growing season, and moisture supply are optimal for the soil to economically produce sustained high yields of crops when proper management—including water management—and acceptable farming methods are applied.

In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. Prime farmland is permeable to water and air: it is not excessively erodible or saturated with water for long periods, and it either experiences very little flooding during the growing season or it is protected from flooding. Additionally, slopes in prime farmland range primarily from 0% to 12%. About 2,134 acres, or approximately 15% of the Reserve, would meet the requirements for prime farmland only if irrigated (USDA-NRCS 2011: p. 57). Because these soils are not irrigated and because the purposes of City of Rocks National Reserve differ from those associated with irrigated farmland, this impact topic was dismissed from further analysis.

Energy Consumption

Implementation of the proposed actions would not cause measurable increases in the overall consumption of electricity, propane, wood, fuel oil, gas, or diesel associated with visitation or with park operations and maintenance. Therefore this topic was dismissed from further analysis.

Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (59 FR 7629, as amended by Executive Order 12948, 60 FR 6381, 42 USC 4321), requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse levels of human health or environmental effects from their programs and policies on minorities and low-income populations and communities.

This executive order does not apply to the subject of this document. The actions evaluated in this document would not have an effect (either beneficial or adverse) on socially or economically disadvantaged populations. There are also no indications that disadvantaged persons would be disproportionately affected. Therefore this topic was dismissed from further analysis.

Wild and Scenic Rivers

There are no wild and scenic rivers or rivers that may be eligible for wild or scenic status within the Reserve. Therefore, this topic was dismissed from further analysis.

Hazardous Materials

There would be no substantial changes in the use of hazardous materials as a result of implementation of the alternatives. Therefore, this topic has been dismissed from further analysis.

RELATIONSHIP OF OTHER PLANNING EFFORTS TO THE GENERAL MANAGEMENT PLAN

The following plans, agreements, and related documents have influenced the preparation of this GMP, or may be modified based on the information in this GMP/EIS. The following list is not all-inclusive. Rather, it represents the plans most relevant to the management actions, issues, policies, and procedures addressed in this GMP.

NATIONAL PARK SERVICE PLANS

California National Historic Trail Comprehensive Management and Use Plan

The *California National Historic Trail, Pony Express National Historic Trail Comprehensive Management and Use Plan/Final Environmental Impact Statement*; and the *Oregon National Historic Trail, Mormon Pioneer National Historic Trail Management and Use Plan update/Final Environmental Impact Statement* was published in June 1999. It provides broad-based policies, guidelines, and standards for administering these four trails to ensure the protection of trail resources, their interpretation, and their continued use. It complies with the planning requirements found in section 5(f) of the 1968 National Trails System Act. The National Trails Intermountain Region, a program of the National Park Service, serves as is the administrator of these trails.

Legislation directs the Secretary of the Interior to cooperate with and encourage those states through which the trails pass to operate, develop, and maintain any portions of these trails that are located outside the boundaries of federally administered areas. The National Trails System Act also authorizes the Secretary of the Interior to enter into cooperative agreements with states, local government, landowners, and private organizations or individuals to help operate, develop, and maintain trail portions outside federal jurisdiction. These cooperative agreements can include provisions for limited financial or technical assistance to

encourage participation in trail management activities. Cooperative agreements can also secure volunteer assistance for the protection and management of the trails and their related resources.

This comprehensive management and use plan for the California National Historic Trail focuses on enhancing resource preservation and visitor use to achieve the highest possible degree of cooperation among the partners, increase awareness of the need to work together, and communicate what is being planned and what is actually being done. This proposal calls for an improved visitor experience through integrated development and programming and a comprehensive strategy for resource protection, including an ambitious program to inventory and monitor resources that would bring together, in one location, information that is currently dispersed.

Purpose of the California National Historic Trail

According to the California National Historic Trail comprehensive management and use plan, the purposes of the trail are to:

- “Enable all people to envision and experience, in a coherent and convenient way, the heritage and impacts of the western overland migration
- Encourage preservation of its history and physical remains” (NPS 1999b: p.25).



View of the California Trail landscape from Pinnacle Pass.

The Trail is nationally significant because:

- “It is one of the major highways of the 19th century, which provided a 2,400-mile path for emigrants to the West. Their resulting settlement significantly contributed to change in peoples, cultures, and landscapes.
- One of the largest overland migrations in American westward expansion used the trail as a result of the California gold rush.
- The route, followed earlier by American Indians and western explorers and travelers, provided a foundation for American transportation and communication systems west of the Mississippi River” (NPS 1999b: p.25).

Interpretive Themes and Subthemes

Several interpretive themes and subthemes were developed in the plan for trailwide themes and geographic regions and subthemes. Trail-specific subthemes developed for the California National Historic Trail (NPS 1999b: p.33) include the following:

- Between 1841 and 1860, more than 200,000 Americans traversed the California Trail to escape economic adversity, obtain better farmlands, or get rich quick in the gold rush.
- Although most of the overland emigrants to Oregon and California through 1848 sought to establish farms and permanent homes, a majority of the forty-niners were single young men, hoping to make their fortunes in the gold fields of the Sierra Nevada and return home to the East.
- The California Trail emigrants represented various cultures, ethnic groups, religious denominations, educational backgrounds, and economic interests.
- The rapid influx of Americans along the California Trail influenced national politics, international relations and boundaries, and U.S. policy toward American Indians. Settlement was so rapid that California became a state in 1850 without having been a territory.

Central Cutoffs and Alternative Routes

The Salt Lake Cutoff (1848) is mentioned in the plan and described as one of the central cutoffs and alternate routes along the California Trail.

City of Rocks National Reserve Grazing Management Plan

The National Park Service contracted with the University of Idaho to produce a grazing management plan for the Reserve in 1996 and again in 2008 to revise the plan. Although this revised plan was submitted, the Reserve has not yet prepared an environmental assessment to document proposed changes to Reserve grazing management operations. Regardless, small changes within the scope of the 1996 grazing management plan have continued. Future revision of the grazing management plan and Reserve grazing operations based on analysis of the University of Idaho recommendations is proposed following the approval of this GMP. (Depending on the alternatives selected for implementation from this GMP, the intent of the grazing management plan may change and/or new studies may be needed.)

The intent of the City of Rocks National Reserve Grazing Management Plan was to enable livestock grazing to continue at an economically viable level for permittees, while meeting long-range objectives to preserve and protect the significant natural and cultural resources and scenic quality within the Reserve. Livestock use in the area began as early as 1850 with grazing along the California Trail and continues to this day.

The goals of the plan (Reserve 2008a: p. 2) were to:

- Manage livestock use so that an appropriate balance between grazing and natural resources protection, cultural resources preservation, recreational use, and scenic quality is assured.
- Through managed grazing and ranching activities protect, preserve, and interpret the historic rural setting.
- Provide for managed use of designated pasture lands within the Reserve.

To achieve these goals, the following program guidelines were established (Reserve 2008a: p. 2) in cooperation with private landowners and grazing permittees:

- The natural and cultural resources and scenic quality of CIRO [the Reserve] may not be impaired by livestock use
- In all issues related to range utilization, management decisions would be based first on whether or not resources will be impaired.
- The 1991 AUM total [animal unit month] for the Reserve is established as the maximum level for range utilization.
- Private lands purchased by CIRO [the Reserve] and vacated allotments may be incorporated into the Reserve's grazing program and the available AUMs may be utilized by one or more of the remaining permittees, as determined by the CIRO [Reserve] Superintendent.
- Existing landowners and permittees within CIRO [the Reserve] have preferential status for future allotment permits.
- Current allotments, which include CIRO [the Reserve] and BLM or USFS lands outside of the Reserve, will be redefined, where feasible and by mutual agreement with the respective agency, so that all grazed public lands within CIRO [the Reserve] are exclusively CIRO [Reserve] allotments.
- As new CIRO [Reserve] allotments are established, the carrying capacity for each will be determined. These carrying capacities will become the maximum AUM levels for future utilizations.

City of Rocks National Reserve Climbing Management Plan and Finding of No Significant Impact

The 1998 *City of Rocks National Reserve Climbing Management Plan and Finding of No Significant Impact* was published shortly after the Reserve's 1996 comprehensive management plan. The climbing management plan (Reserve

1998a: p. 1) was prepared to determine the following:

- The appropriate level and type of climbing practices within the Reserve
- What types and levels of impact associated with climbing in different areas of the Reserve are acceptable and do not impair Reserve resources or result in derogation of Reserve values
- What climbing practices should be used and are appropriate within the Reserve
- What levels and kinds of mitigating management actions are necessary to assure a sustainable range of compatible climbing opportunities with long-term protection of the Reserve's natural and cultural resources and retention of a high-quality visitor experience.

The proposed action incorporates a permit system for climbing activities with a regulatory approach to protect resources and control climbing. Climbing is managed with the primary intent to protect the resources and values of the Reserve, while providing for appropriate levels of public recreational climbing use. Climbing is prohibited within the California Trail management subzone, which incorporates the two spires of the Twin Sisters formation.

A revised climbing management plan is on hold pending completion of the GMP.

City of Rocks Fire Management Plan

The *City of Rocks National Reserve Fire Management Plan* and compliance document were completed in September 2005. The plan considers fire management activities over a five-year period and assists park managers in meeting cultural and natural resource management goals, while ensuring firefighter and public safety are not compromised (Reserve 2005b).

The three paramount considerations listed in the Reserve fire management plan are:

- To protect life and property within and adjacent to Reserve areas
- To perpetuate, restore, replace, or

replicate natural processes to the greatest extent practicable

- To protect natural and cultural resources and intrinsic values from unacceptable impacts attributable to fire and fire management activities

City of Rocks National Reserve Visitor Study

The *City of Rocks National Reserve Visitor Study*, prepared by the Social Science Program of the National Park Service in April 2009, describes the results of a visitor study at City of Rocks National Reserve September 6–14, 2008. A summary of this information is presented in “Chapter 4: Affected Environment” in the “Visitor Use” section.

City of Rocks National Reserve Cultural Landscape Inventory

The *City of Rocks National Reserve Cultural Landscapes Inventory* was completed in 2008 and serves as a database containing information on the historically significant landscapes within City of Rocks National Reserve. This inventory identifies and documents each landscape’s location, size, physical development, condition, landscape characteristics, and character-defining features, as well as other valuable information useful to Reserve management. The results of the inventory present the overall condition of the City of Rocks National Reserve cultural landscape and the stabilization measures necessary to preserve those features.

City of Rocks National Reserve—Research Natural Area

Natural Resource Condition Assessment: City of Rocks National Reserve – Research Natural Area (NPS 2010) was the result of a study conducted at the Reserve and prepared by Northwest Management, Inc., in March 2010. The report was developed to give Reserve managers and planners a better understanding of the City of Rocks Research Natural Area.

Research natural areas are defined as a national network of sites designed to facilitate research, preserve natural features, and represent prime examples of ecological communities with little past disturbance and unimpeded natural processes. The report states that the current 312-acre Research Natural Area was officially recognized by the National Park Service in the 1996 comprehensive management plan for the Reserve (240 acres of BLM land and 72 of USFS land transferred to the National Park Service when the Reserve was established). *NPS Natural Resource Management Reference Manual 77* guides management activities of the Research Natural Area, which are limited to nonmanipulative research and/or education (with no grazing allowed in the Research Natural Area). Research natural areas are defined as a national network of sites designed to facilitate research, preserve natural features, and represent prime examples of ecological communities with little past disturbance and unimpeded natural processes.

The report states that City of Rocks Research Natural Area continues to meet the purpose for which it was originally established, has few observed human impacts (impacts were noted primarily along the southern and western boundaries), and preserves a healthy old-growth stand of singleleaf pinyon (*Pinus monophylla*) at the northernmost distribution of the species and associated community. The Research Natural Area is one of four research natural areas in Idaho with a singleleaf pinyon plant association and contains the highest frequency of singleleaf pinyon in sample plots. The area’s designation as a research natural area will help preserve the genetic diversity of the singleleaf pinyon community.

A related study, *City of Rocks National Reserve—Proposed Expansion of the Research Natural Area*, was completed by Northwest Management, Inc. in December 2010 to investigate possible areas for RNA expansion.

The proposed expansion areas ranged in size from 9.5 acres to 303 acres and were selected due to their similarity in vegetation, rock outcrops, species diversity, and cattle

accessibility. The proposed expansion areas would create a continuous Research Natural Area that would exhibit similar vegetation compositions and provide additional buffer for the current Research Natural Area from undesirable weed species and grazing. More research is needed, however, to determine if the proposed areas meet all the requirements for RNA designation. Some of these expansion areas are considered in two of the alternatives.

RELATED FEDERAL AGENCY PLANNING DOCUMENTS

USFS – Sawtooth National Forest Land and Resource Management Plan

The *Sawtooth National Forest Land and Resource Management Plan* is a 10- to 15-year plan and was completed by the U.S. Forest Service in 2005. The plan covers 2.1 million acres and describes management goals and objectives, resource protection methods, desired resource conditions, and the availability and suitability of lands for resource management. The purpose of the plan is to provide management direction to ensure sustainable ecosystems and resilient watersheds that are capable of providing a sustainable flow of beneficial goods and services to the public. The Sawtooth National Forest is managed for watershed and soil protection, grazing, wildlife habitat, timber, and recreation. The unit nearest to the Reserve is approximately 63,400 acres (USFS 2005). There are two management areas of the Sawtooth National Forest that adjoin the boundary of the Reserve and are discussed below:

USFS – Management Area 17

Management Area 17, the Independence Lakes area, is located directly north of and contiguous with the Reserve boundary. It is 43,300 acres, including one private land inholding of 625 acres. The primary uses in this area are livestock grazing and dispersed recreation. Portions of the Cache Peak and Mount Harrison Inventoried Roadless Areas are found within the management area.

Management direction specific to the Reserve and related to the scenic environment is to “maintain scenic integrity in areas next to City of Rocks and Castle Rocks to preserve the high scenic value of these areas for visitors.” In addition, recreation resources would “emphasize recreation facility maintenance, specifically Independence Lakes Trailhead, and Independence Lakes and Skyline Trails” (USFS 2005: III-288).

USFS – Management Area 15

Management Area 15, the Albion Mountains area, is 20,100 acres adjoining the Reserve’s northwestern boundary. The primary uses in this area are livestock grazing and dispersed recreation. Though there are portions of inventoried roadless areas (Cache Peak and Mount Harrison) in this management area, they are not contiguous with the Reserve boundary.

The management guideline for recreation resources states the desire to “coordinate closely with the National Park Service and Idaho Department of Parks and Recreation in managing the area around City of Rocks.” For fire management, the management objective is to: “Identify areas appropriate for wildland fire. Use wildland fire to restore or maintain vegetative desired conditions and to reduce fuel loadings. However, emphasize prescribed fire or mechanical treatments over wildland fire use adjacent to off-Forest agricultural investments and on-Forest plantations, and in the Almo Park and City of Rocks” (USFS 2005: III-271).

USFS – City of Rocks Research Natural Area

The National Forest Management Act regulations require that forest plans study and recommend areas for research natural areas. The search for candidate areas on the Sawtooth National Forest began in 1977 and was coordinated with the Idaho Natural Areas Coordinating Committee. The previous 1987 *Sawtooth National Forest Land and Resource Management Plan* found eight candidate research natural areas on USFS land to be eligible. One of the candidates was a 45-acre site known as City of Rocks adjacent to the BLM research natural area of the same name.

The City of Rocks Research Natural Area was designated in the *Sawtooth National Forest Land and Resource Management Plan* for its geologic features and singleleaf pinyon vegetation. The management goal for the Research Natural Area was to maintain the area in its natural condition for research and education opportunities (USFS 1987).

The National Park Service received the USFS Research Natural Area when the Reserve was established in 1988.



Rock climbing is one of the most popular visitor activities at the Reserve.

BLM – Cassia Resource Management Plan

The most recent *Cassia Resource Management Plan* (RMP) was published by the BLM Burley District Office in January 1985. As with the U.S. Forest Service, the Bureau of Land Management manages its lands for multiple use objectives under the Federal Land Policy and Management Act of 1976, as amended. The resource management plan encompasses 1,629,472 acres located in south central Idaho. Approximately 97% of this acreage is located within Cassia County.

The resource management plan is divided into 14 management areas that consist of lands with similar resource features and characteristics that can be effectively managed as a unit. This plan predates the establishment of City of Rocks National Reserve, but those lands now within the Reserve were in Management Area 8.

Management Area 8 contains 17,877 acres of public land and consists of the City of Rocks and the surrounding mountains at the southern end of the Albion Range. This management area has nine resource management objectives that relate to: improving rangeland; providing forage for livestock; improving wildlife habitat; controlling surface disturbing activities on erodible soils; preserving the geologic, historic, and scenic values of City of Rocks;

and upholding the integrity of the national natural landmark and national historic landmark designations.

In addition to these objectives, the resource management plan calls for the preparation of a watershed management plan, habitat management plan, and a City of Rocks recreation area management plan (BLM 1985).

BLM – City of Rocks Research Natural Area

In 1987, an amendment was added to the 1985 BLM *Cassia Resource Management Plan* to evaluate lands nominated for

dual designation as research natural areas and areas of critical environmental concern. A 240-acre section of BLM land at City of Rocks was one of the areas recommended for designation by the University of Idaho and The Nature Conservancy to serve as a range and woodland reference site. Due to its steep terrain, this area was generally not used for grazing.

The area designation was primarily due to City of Rocks containing one of the most northern populations of singleleaf pinyon pine in a pinyon pine-Utah juniper forest type. The area also consists of Basin and Range vegetative habitat. It was noted that the undisturbed condition of the range habitat would be used to compare rangeland treatments with nontreated areas (BLM 1987).

The National Park Service received the BLM Research Natural Area when the Reserve was established.

Castle Rocks Climbing Decision Record and Finding of No Significant Impact

In 2009, the Bureau of Land Management conducted an environmental assessment on a proposal to adopt the *Castle Rocks Interagency Recreation Area Climbing Management Plan*

(BLM 2010). The Castle Rocks Interagency Recreation Area (a concept no longer used) includes 480 acres of USFS land, 400 acres of BLM land, and 1,420 acres of IDPR land.

In the Decision Record, the Bureau of Land Management selected alternative III, which closed BLM-managed lands in the Castle Rocks Interagency Recreation Area to all types of climbing. In addition, the Bureau of Land Management does not allow overnight camping or construction of new trails in the interagency recreation area. This alternative was selected because the other alternatives “have the potential to cause adverse cumulative effects to historic properties” as defined under 36 CFR 88.16 (BLM 2010: p. 2). The Bureau of Land Management also selected alternative III because it protects cultural and natural resources that would be impacted by increased visitation in the other alternatives. The decision recognized that closing BLM lands reduced the opportunity to climb rocks in the BLM portion of Castle Rocks Interagency Recreation Area, but goes on to state that similar climbing opportunities exist at City of Rocks National Reserve and in the IDPR portions of Castle Rocks.

In November 2011, the Bureau of Land Management initiated an RMP amendment to consider closing BLM-managed lands in the Castle Rocks area to certain activities to protect cultural and historic properties. These BLM lands contain resources that are rare and of great importance to the Shoshone-Bannock Tribes of Fort Hall and the Shoshone-Paiute Tribes of the Duck Valley. According to the Bureau of Land Management, both tribes consider the area a sacred site and have asked the Burley Field Office to help them nominate the area as part of a traditional cultural property under the National Register of Historic Places.

The RMP amendment and associated environmental assessment considered the permanent designation of no climbing, no staging, no camping, and no construction of new trails on BLM-managed lands at Castle Rocks Interagency Recreation Area. In April 2013, the Bureau of Land Management published the *Proposed Decision Record and Finding of*

No Significant Impact (FONSI), Cassia Resource Management Plan Amendment at Castle Rocks (BLM 2013b). This decision implements the March 2010 decision to close BLM-managed lands in the Castle Rocks area to staging, traditional climbing, sport climbing, and bouldering; prohibit overnight camping and construction of new trails; and remove bolts from existing bolted climbing routes from BLM-managed lands.

RELATED STATE, COUNTY, AND REGIONAL PLANNING DOCUMENTS

Castle Rocks State Park Master Plan

The *Castle Rocks State Park Master Plan* was prepared by the Idaho Department of Parks and Recreation in September 2006. The IDPR intent is to designate and manage the park under its Natural Park classification which is defined as lands and waters containing outstanding natural communities and possessing natural integrity.

The vision for the park is stated as providing diverse recreational activities with an emphasis on discovery and solitude in a protected geologic setting. Visitors would be offered opportunities



Pinnacle near the geological trail.

to experience natural beauty, ranching heritage, and prehistoric culture.

The preferred alternative chosen was a modified high-level management alternative. The preferred alternative has many management objectives that relate to City of Rocks National Reserve. These include the following actions:

- Identify trail connections for climbers, equestrians, hikers, and mountain bikers from Castle Rocks State Park to other public lands, including City of Rocks National Reserve
- Continue to share a new permanent visitor center with the Reserve as the primary contact point for visitors
- Convert the current temporary visitor center to staff offices once a permanent one is constructed
- Develop an amphitheater at Smoky Mountain Campground within walking distance of the campsites
- Expand Smoky Mountain Campground according to the BLM lease agreement
- Expand camping opportunities at Smoky Mountain Campground with an additional tent camp loop and back country yurts
- Identify possible trail links to other public lands from Smoky Mountain Campground for recreational opportunities in a trail management plan

Idaho State Trust Lands

The Idaho Department of Lands manages 2,460,000 acres for the purpose of providing financial support for various institutions. Approximately 85% of these lands are managed to provide financial support for Idaho public schools. There are three 640-acre sections of trust lands within close proximity to the existing Reserve boundary, all of which are rangeland and managed for Idaho public schools. The management of all Idaho State Trust Lands is guided by the *State Trust Lands Asset Management Plan* (ISBLC 2007). The management goals for state trust lands

established by this plan include:

- Protect and enhance the value and productivity of the land assets
- Maximize financial returns from land assets over time
- Encourage a diversity of revenue-producing uses of land assets
- Manage land assets prudently, efficiently, and with accountability to the beneficiaries

Cassia County Comprehensive Plan

The *Cassia County Comprehensive Plan* was adopted by Cassia County in 1992 and revised in 2006. The plan's purpose is to guide future development of the county for the next 20 to 25 years. It is based on long-term goals and addresses 14 planning components set forth in the Idaho Local Land Use Planning Act (Idaho Code Section 67-6508).

The plan lists 10 historical, geological, and recreational sites recommended for protection from incompatible land uses, including City of Rocks National Reserve. According to the plan, incompatible or destructive land uses "will be reviewed in order to determine what steps may be needed to remove, reduce or prevent the negative impacts on the identified special site or area" (Cassia County 2006: p. 47).

Cassia County Public Land Use Policy Plan

Federal and state lands make up a large portion of Cassia County. The *Cassia County Public Land Use Policy Plan* was adopted in August 2009 by Cassia County to guide the use of public lands in the county, including federal and state land uses and activities, and to protect the rights of private landowners. The intent of the plan is to "protect the custom and culture of county citizens through protection of private property rights, the facilitation of a free market economy, and the establishment of a process to ensure meaningful input into the planning process by local communities and individuals" (Cassia County 2009: p.1).

The plan states that federal and state agencies must coordinate with the Cassia County Commission for any proposed actions from their agencies in the county that will impact the *Cassia County Public Land Use Policy Plan* and must submit in writing the purposes, objectives, and estimated impacts of their actions. The report would be provided to the County Commission for review and coordination prior to initiation of action.

The policies cover land disposition, water resources, agriculture, timber and wood products, cultural resources, recreation, wildlife and wilderness, mining, transmission corridors, alternative energy, cultural background, access and transportation, monitoring and compliance, and severability. The *Cassia County Public Land Use Policy Plan* is considered a companion planning document to the *Cassia County Comprehensive Plan* (Cassia County 2009).



Simpson's hedgehog cactus can be found in the Reserve.

NEXT STEPS IN THE PLANNING PROCESS

After distribution of the draft GMP/EIS, there will be a 60-day public review and comment period after which the planning team will evaluate comments from other governmental agencies, tribes, organizations, businesses, and individuals regarding the draft plan. The planning team will then incorporate appropriate changes to produce a final GMP/EIS.

The final GMP/EIS will include letters from governmental agencies, any substantive comments on the draft GMP/EIS, and planning team responses to those comments. Following

distribution of the final GMP/EIS and a 30-day no-action period, a Record of Decision (ROD) will document the NPS/IDPR selection of an alternative for implementation. The Record of Decision must then be approved and signed by the NPS Pacific West Regional Director. When the Record of Decision is signed and approved, the public will be notified and the final GMP can be implemented. Specific actions and plans derived from the GMP may require additional environmental impact analysis and/or implementation of mitigation measures.

IMPLEMENTATION OF THE GENERAL MANAGEMENT PLAN

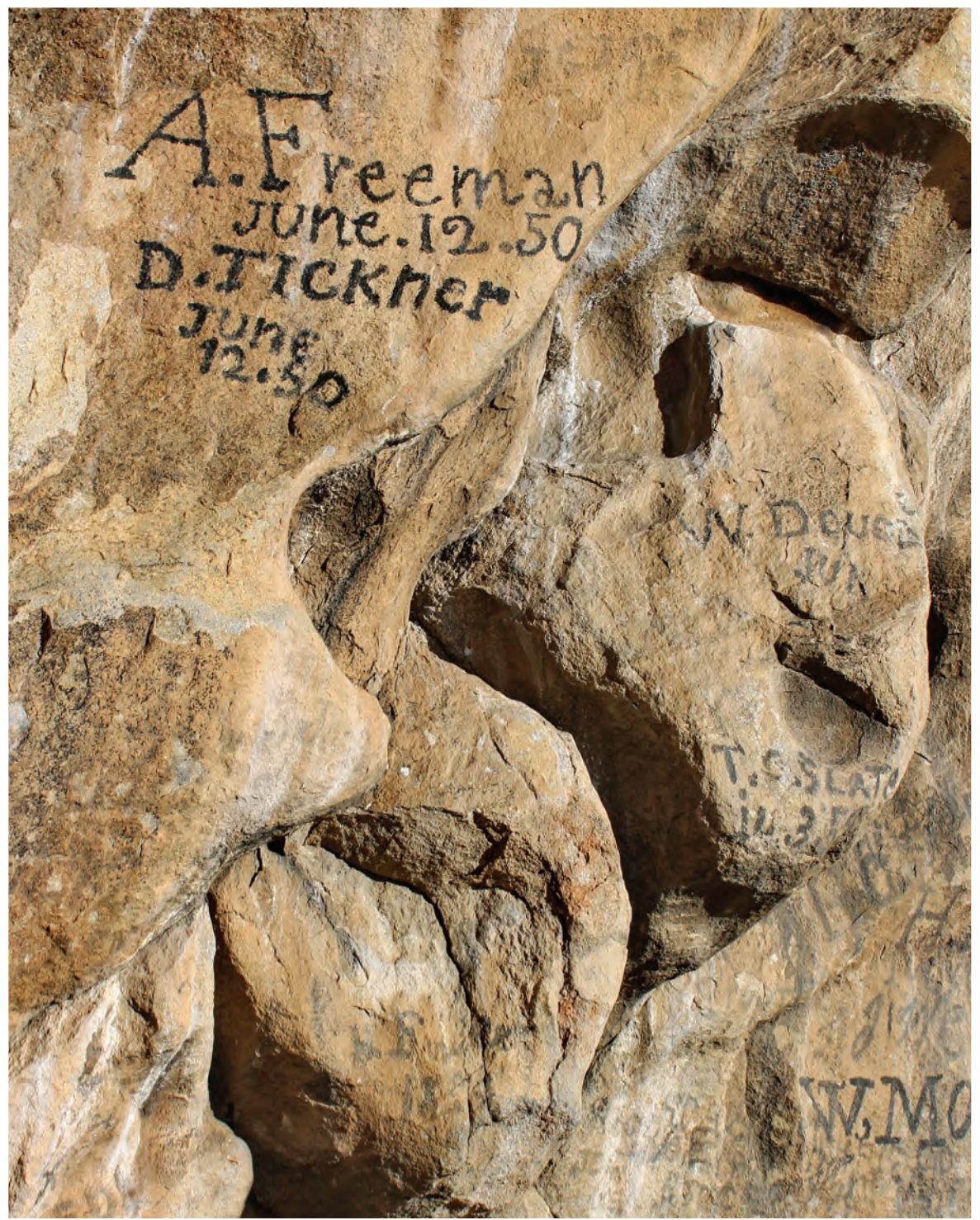
Implementation of the approved GMP will depend on future funding. The approval of a general management plan does not necessarily guarantee that the funding and staffing needed to implement the plan will be forthcoming. Full implementation of the approved GMP may be many years in the future.

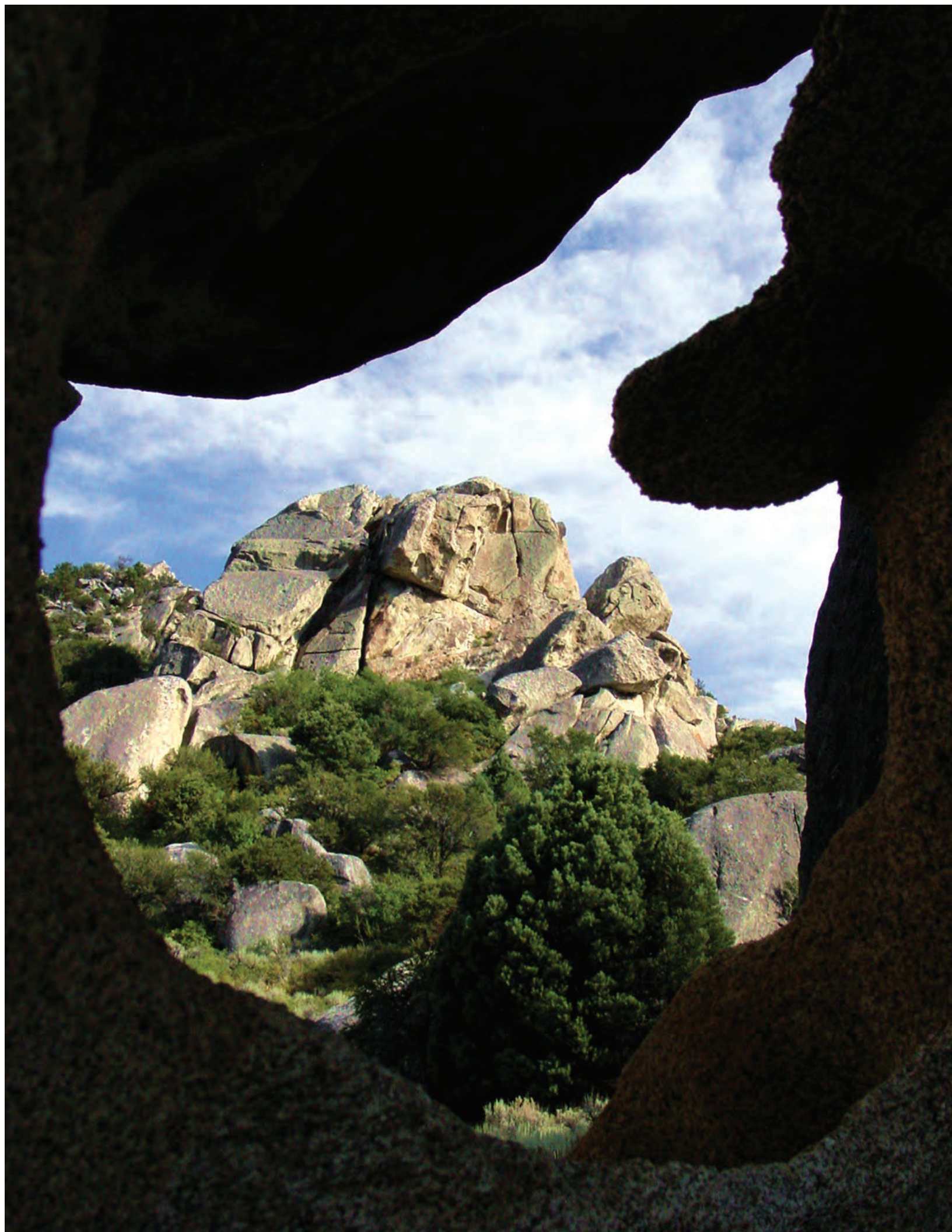
Implementation of the approved plan also could be affected by other factors, such as changes in visitor use patterns, management agreements among partner agencies, and unanticipated environmental changes. Once the GMP has been approved, additional feasibility studies and more detailed site specific documentation, planning, and compliance will be completed, as appropriate, before many proposed actions could be carried out. Several management actions and plans that would require additional environmental impact analysis would be prepared subsequent to the approval of this GMP. Among others, these include the revised grazing and fire management plans and some actions associated with the Rim development concept plan.

Future implementation plans, such as those described above will tier from the approved GMP/EIS and will be based on the goals, future conditions, and appropriated types of activities established upon approval of the final GMP/EIS.

Chapter 2

Foundation for Planning and Management





Chapter 2: Foundation for Planning and Management

This chapter contains a summary of the foundation document developed for City of Rocks National Reserve. The foundation document provides a shared understanding of the Reserve's purpose, significance, fundamental resources and values, interpretive themes, and special mandates and legal requirements. Elements of foundation documents are discussed below.

PURPOSE OF THE FOUNDATION DOCUMENT

The foundation document is used to guide current and future planning and management of City of Rocks National Reserve. The foundation document contains a description of the Reserve's purpose, significance, fundamental resources and values, interpretive themes, special mandates, and the legal/policy requirements for administration and resource protection. The primary advantage of developing a foundation document is the recorded understanding of what is most important about the Reserve that provides the basis for future planning and decision-making.

ELEMENTS OF A FOUNDATION DOCUMENT

The legislation that created the City of Rocks National Reserve guided the planning team in understanding and documenting why Congress and the president created the Reserve. The foundation document defines each of the following elements:

PURPOSE

The purpose is a statement of why Congress and/or the president established the Reserve as a unit of the national park system. The purpose

statement provides the most fundamental criteria against which the appropriateness of all planning recommendations, operational decisions, and actions are tested. The purpose of the Reserve is based on its enabling legislation and legislative history.

SIGNIFICANCE

Guided by legislation and the knowledge acquired through management, research, and civic engagement, statements of significance define what is most important about the Reserve's resources and values. In developing the significance statements, the planning team focused on the attributes that make the Reserve's resources or values important enough to be included in the national park system. City of Rocks National Reserve contains many significant resources, but not all these resources contribute to the Reserve's national park unit status.

The purpose and significance statements are used to guide all planning and management decisions to ensure that the resources and values considered most significant by Congress and the president are the Reserve's first priority.

FUNDAMENTAL RESOURCES AND VALUES

The City of Rocks National Reserve works to ensure that those resources and values that are fundamental to maintaining the Reserve's significance are preserved for public enjoyment. Understanding the resources and values that support each significance statement will provide managers and planners with a focus on what is truly most important about a park. If the fundamental resources and values are degraded, then the significance of what is most important about the Reserve may be jeopardized.

Defining the fundamental resources and values does not preclude the consideration of other important resources and values. The National Park Service planning process calls for a rigorous analysis of the impacts of proposed actions on all components of the environment, particularly those resources and values determined to be so important nationally or locally that they are protected by law.

ANALYSIS OF FUNDAMENTAL RESOURCES AND VALUES

The analysis articulates the importance of the fundamental resources and values, their current conditions, potential threats, and the issues that need consideration in planning and management. Included in the analysis is the identification of relevant laws and NPS policies related to the preservation and management of the resources. In addition, stakeholders who have a substantial interest in the preservation or management of a particular resource are identified. This section of the foundation document will require periodic reviews and updates as monitoring and research improves our understanding of each fundamental resource and value. (The analysis of fundamental resources and values is not included in this GMP, but is part of the City of Rocks National Reserve Foundation Document [January 2007]. Copies can be obtained by contacting the Reserve.)

INTERPRETIVE THEMES

Interpretive themes are the key stories and concepts of the Reserve and describe what needs to be interpreted to provide visitors with opportunities to understand and appreciate the purpose and significance of the Reserve. The development of interpretive themes provides the foundation on which the Reserve's educational and interpretive programs are based.

SPECIAL MANDATES

Special mandates are legal requirements and administrative commitments that apply to the Reserve. These special mandates may include direction from Congress or formal agreements with other public or private entities. The special mandates are identified to ensure their consideration in all planning and decision making about the Reserve.

PURPOSE OF CITY OF ROCKS NATIONAL RESERVE

City of Rocks National Reserve was created to preserve and protect through cooperative efforts the scenic qualities and attributes of the California Trail landscape, historic rural setting, and granite features, while interpreting its values and managing recreation.



Geology bread loaves.

SIGNIFICANCE, FUNDAMENTAL RESOURCES AND VALUES, AND INTERPRETIVE THEMES OF CITY OF ROCKS NATIONAL RESERVE

SIGNIFICANCE STATEMENT 1 – EMIGRANT HISTORY

City of Rocks National Reserve preserves the most intact and authentic setting of the California Trail that was part of the largest overland emigration route in American history. City of Rocks served as a landmark and critical refuge that inspired numerous written accounts of the landscape.

Fundamental Resources and Values

- California Trail remnants and artifacts such as wagon ruts, inscriptions, and encampments
- Diaries, art, and other written records documenting the experiences and thoughts of emigrants passing through City of Rocks
- Vegetation communities (1840–70) observed by the emigrants
- Geologic formations that provided landmarks and inspiration for the emigrants (such as naming of rocks)
- Watering sources (springs and streams) that supported the emigrants' experience
- Archives of the Reserve that document the signatures, historic vegetation communities, and emigrant encampments

Interpretive Theme

- City of Rocks was a major landmark for emigrants traveling along the California Trail. City of Rocks provided rest and inspiration for the many weary travelers who were heading for Granite Pass and ultimately for California or Oregon.

SIGNIFICANCE STATEMENT 2 – TIMELESS SCENERY

The Reserve has a timeless natural quality and protects and preserves outstanding scenery set among sculpted granite monoliths framed by the Albion and surrounding mountains.

Fundamental Resources and Values

- Unobstructed views of the natural landscape, which include towering rock pinnacles, vegetative patterns, and changing elevation
- Dominance of natural sounds such as birds and wind (soundscapes)
- Clear atmospheric conditions that provide for pristine airsheds and clear night skies

Interpretive Theme

- The timeless scenery of City of Rocks National Reserve is broad and expansive yet accessible and personal. People develop a personal relationship with this landscape as evidenced by emigrant journals and comments from modern-day visitors.

SIGNIFICANCE STATEMENT 3 – RURAL SETTING

City of Rocks National Reserve embraces the historic rural setting by preserving remnants of traditional occupation, transportation, and land use of the people who lived here.

Fundamental Resources and Values

- Remnant structures and features of the historic City of Rocks stage station along the historic Kelton-Boise stage route
- Structures and features associated with historic land uses of the Reserve are evidence of ranching, mining, and dryland farming
- Natural landscape of what is now City of Rocks National Reserve was used for thousands of years by different peoples

Interpretive Theme

- The rural setting of City of Rocks National Reserve still provides authenticity to the traditional western rural lifestyles of the past 150 years.



Dark clouds over Chicken Rock.

SIGNIFICANCE STATEMENT 4 – INSPIRATIONAL LANDSCAPE

The Reserve is a dramatic geologic landscape with naturally sculptured spires and domes that evoked emotional responses, as recorded in emigrant diaries and by visitors today.

Fundamental Resources and Values

- Rare geologic landscape of densely spaced granite spires and domes enclosed within a mountain basin

Interpretive Theme

- Erosion of a cross-jointed granite pluton has resulted in the formation of a maze of spires and domes that are noted for their impressive scenery, stark silence, and inspirational qualities.

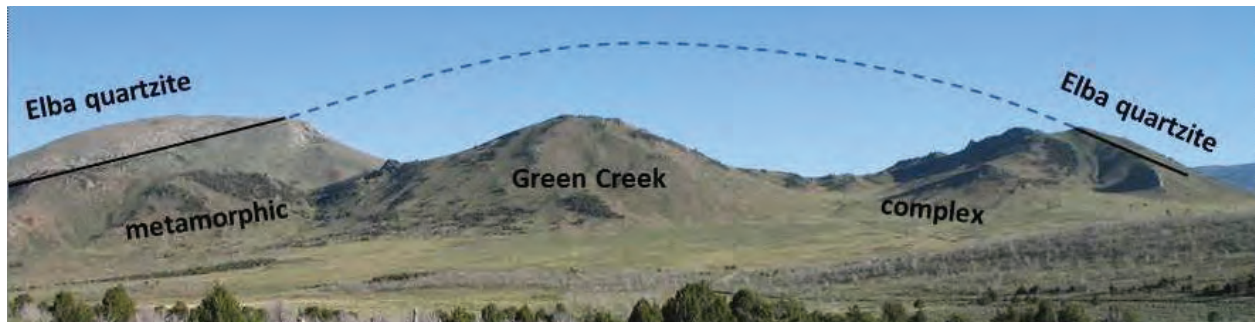


Diagram of prevailing rock types at City of Rocks.

SIGNIFICANCE STATEMENT 5 – GEOLOGIC RESOURCES

The Reserve preserves an uplifted and eroded landscape that reveals geologic structures, igneous intrusions, and a rare exposure of some of the oldest and deepest crustal metamorphic rocks in the western United States.

Fundamental Resources and Values

- Geologic structures and rock types that provide opportunities for scientists and visitors to observe and understand (1) ancient and recent tectonic events that raised the mountainous interior of the western United States and (2) surficial processes of weathering, erosion, and deposition that shape the current landscape and reveal otherwise buried structures and ancient rocks

Interpretive Theme

- The uplifted and eroded rocks at City of Rocks National Reserve are like an open window into the crust of the earth where visitors and scientists can view (1) geologic structures and ancient rocks resulting from a long history of tectonic events that raised the mountainous interior of the western United States and (2) landforms that provide clues to the surficial processes of weathering, erosion, and deposition that shaped the current landscape.

SIGNIFICANCE STATEMENT 6 – ROCK CLIMBING

City of Rocks National Reserve provides one of the highest quality granite face-climbing areas in the United States.



Rock climbing and many recreational activities are accommodated.

Fundamental Resources and Values

- World-class climbing area due to the combination of excellent quality granite, a preponderance of easy to moderate well-protected climbs, and a naturally quiet and austere western setting

Interpretive Theme

- People come from around the world to experience the challenge of climbing the rocks in a quiet and scenic western setting.



Geology depression against a concave flared granite wall functions like a cistern.

SIGNIFICANCE STATEMENT 7 – BIOGEOGRAPHIC CROSSROADS

The Reserve occurs at a biogeographic crossroads and protects a rich ecological diversity, providing exceptional opportunities for scientific study and shared learning.

Fundamental Resources and Values

- Unique representation of plant and animal species distribution, encompassing the northern extent of some species while including the southern extent of others

Interpretive Theme

- Because the Reserve is located between the Great Basin and the Upper Columbia Basin, a diversity of plants and animals can be studied, observed, and enjoyed in a relatively small area.

SPECIAL MANDATES AND ADMINISTRATIVE COMMITMENTS

Often there are special mandates or constraints that direct national park system unit planning and management decisions. The special mandates are specific directions or agreements that relate directly to the park unit. Mandates might be a legislative requirement or a signed agreement that adds another dimension to a park unit's purpose and significance: for example, mandates could include an agreement that an area is managed by another entity, or they might include a unique designation such as a wilderness area, a world heritage area, or a biosphere reserve.

Additionally, mandates—such as long-term cooperative agreements and easements—can commit managers to specific actions and limit their ability to modify land use in the park unit. Mandates and constraints are specific to City of Rocks National Reserve. There are also law and policy considerations that relate to the national

park system as a whole; these are described at the end of this foundation document (see “Desired Conditions and Potential Management Strategies Derived from Laws, Regulations, and Policies”).

MANAGEMENT OF THE NATIONAL RESERVE

City of Rocks National Reserve is a unit of the national park system managed by the Idaho Department of Parks and Recreation under Cooperative Agreement 1443-CA9000-96-0002.

USE OF PRIVATE PROPERTY WITHIN CITY OF ROCKS NATIONAL RESERVE

Private land uses are subject to Cassia County ordinances that are designed to protect the historic rural setting. The county’s Historic Preservation Zone limits existing landowners to one residence and land use consistent with that of 1988 and earlier. The Historic Preservation Zone does not fully cover the Reserve (a portion of the southeast section of the Reserve was left out) and this may not fully protect and preserve the historic and natural features in that area.

HUNTING WITHIN CITY OF ROCKS NATIONAL RESERVE

Public Law 101-512, dated November 5, 1990, provides that hunting will be permitted in accordance with applicable laws of the United States and the State of Idaho, except in designated zones where and periods when no hunting may be permitted for reasons of public safety, administration, floral and faunal protection and management, or public use and enjoyment.

WATER RIGHTS

Within Public Law 100-696, dated November 18, 1988, Congress recognized that unique circumstances exist regarding water and water-related resources within the Reserve. The State of Idaho has committed to providing the water necessary to fulfill the purposes of the Reserve. In addition, Congress recognized that there is little or no water or water-related resources that require the protection of a federal-reserved water right. However, the Reserve is entitled to federal reserved water rights associated with the initial withdrawal of the land for national forest purposes.

DISPOSITION AND MINING

Subject to valid existing rights, federal lands and interests within the Reserve are (1) withdrawn from disposition under the public land laws, (2) withdrawn from entry or appropriation under the mining laws of the United States, and (3) withdrawn from the operation of the mineral leasing laws, and from operation of the Geothermal Steam Act of 1970, as amended.



The Reserve’s pinyon pine woodlands provide an opportunity for scientific research as well as visitor enjoyment and pine-nut gathering.

SUMMARY OF PRESIDENTIAL, LEGISLATIVE, AND ADMINISTRATIVE ACTIONS

City of Rocks National Reserve was designated as a national reserve and a unit of the national park system in 1988.

TABLE 1. SUMMARY OF PRESIDENTIAL, LEGISLATIVE, AND ADMINISTRATIVE ACTIONS		
Public Law	Date	Summary
Public Law 100-696 Arizona-Idaho Conservation Act of 1988	Approved November 18, 1988	Establishes City of Rocks National Reserve—to provide for the designation and conservation of certain lands in the states of Arizona and Idaho.
Public Law 101-512 Hunting in City of Rocks National Reserve	Approved November 5, 1990	Legislates hunting in City of Rocks National Reserve under Idaho Department of Fish and Game, except in high visitor use zones.
Public Law 106-421, Castle Rock Ranch Acquisition Act of 2000	Approved November 1, 2000	Directs the Secretary of Interior to enter into a land exchange to acquire from the private owner and to convey to the state of Idaho approximately 1,240 acres of land near the City of Rocks National Reserve, Idaho.
Public Law 102-328, Amends the National Trail System Act	Approved August 3, 1992	Legislates the California National Historic Trail as a component of the national trails system. The National Trails Systems Act [PL 90-543], enacted into law in 1968, defined the purpose of the national historic trails as “the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment.”
City of Rocks National Historic Landmark designation by Secretary of the Interior	1964	Designates City of Rocks, significant under the themes of transportation and exploration, as one of the great natural landmarks on the California Trail. The first practicable route to California, north of the Great Salt Lake, passed directly through the City of Rocks valley. After 1846 it was sometimes referred to as the “Applegate Trail,” used by Oregon-bound emigrants. Many tar-filled inscriptions carved into the soft granite columns are still discernible today and are evidence of pioneering expeditions that traveled through the valley throughout the 19th century. National historic landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States.
City of Rocks National Natural Landmark	1974	This designation commemorates City of Rocks for its unique geology that exhibits nationally significant features, including the dominance of bornhardt formations, the scarcity of tors, a wide range of elevations over which the landforms are distributed, and evidence that the landforms have been carved from the upper parts of a pluton. The National Natural Landmark Program was established by the Secretary of the Interior to identify, recognize, and encourage the protection of sites containing the best remaining examples of ecological, and geological components of the nation’s natural heritage.

DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

To fully understand the implications, limitations, or requirements of an alternative proposed in this GMP/EIS, it is important to compare the servicewide laws and policies with the management actions described in the alternative. To facilitate this process, this section identifies what must be done at City of Rocks National Reserve to comply with applicable laws, regulations, and policies. Management directives derived from these sources are summarized in two ways: as the desired conditions they set forth, and the potential management strategies park managers may employ to achieve them. These are then used to assess the merits of alternatives during the planning process.

Many management directives for the Reserve are specified in laws, regulations, and policies guiding the National Park Service and therefore are not subject to alternative approaches. For example, there are laws and policies about managing environmental quality, such as the Clean Air Act and the Endangered Species Act; laws governing the preservation of cultural resources and cultural values, such as the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act; and laws about providing public services, such as the Americans with Disabilities Act—to name only a few. In other words, a general management plan is not needed to decide, for instance, that it is appropriate to protect endangered species, control nonnative species, protect archeological sites, conserve artifacts, or provide for universal access—laws and policies already require the National Park Service to fulfill these mandates. The National Park Service would continue to strive to implement these requirements with or without a new general management plan.

Some laws and executive orders are applicable solely or primarily to units of the national park

system. These include the 1916 Organic Act that created the National Park Service; the General Authorities Act of 1970; the National Parks and Recreation Act of 1978, relating to the management of the national park system; and the National Parks Omnibus Management Act (1998). Other laws and executive orders, such as those addressing environmental quality, have much broader application.

The NPS Organic Act provides the fundamental management direction for all units of the national park system. It states, “The National Park Service shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations . . . by such means and measure as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

The National Park Service General Authorities Act affirms that while all national park system units remain “distinct in character,” they are “united through their interrelated purposes and resources into one national park system as cumulative expressions of a single national heritage.” The act makes it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Further, the Redwood Act of 1978 states that NPS management of park units should not “derogat[e] . . . the purposes and values for which these various areas have been established.” The National Park Service also has established policies for all units under its stewardship. These are identified and explained in an NPS guidance manual entitled *Management Policies 2006*. The alternatives considered in this document incorporate and comply with the provisions of these mandates and policies.

The most pertinent servicewide laws and policy topics related to planning and managing the Reserve are examined below. For each topic, there is a series of desired conditions that the Reserve staff is achieving, and will continue to

strive to achieve, for that topic. The law or policy behind these desired conditions is cited, and examples of the types of actions being pursued by Reserve staff are given. The alternatives in this GMP/EIS address the desired future conditions that are not mandated by law and policy and must be determined through a planning process.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Ecosystem Management
	<p>Law and Policy Source NPS <i>Management Policies 2006</i> (§1.5, 4, 4.1, 4.1.4, 4.4.1) provides general direction for managing national park units from an ecosystem perspective.</p> <p>Desired Conditions City of Rocks National Reserve is managed holistically, as part of a greater ecological, social, economic, and cultural system. The Reserve develops and maintains a current land protection plan that identifies means of protection available to achieve the purposes for which the Reserve was created. Reserve managers seek to maintain all components and processes of naturally evolving park ecosystems. Natural disturbance and change are recognized as an integral part of the functioning of natural systems. Through partnerships and cooperative agreements, the Reserve staff works with other land managers in the Northern Basin and Range Ecosystem (North American Desert) to accomplish mutual objectives for providing wildlife corridors, protecting biodiversity and key habitats, etc. In collaboration with landowners inside and outside the Reserve, viewsheds within and adjacent to the Reserve are protected. The Reserve provides benchmarks or “control” conditions for studies of ecosystem processes in (largely) unmanipulated landscapes, such as the Research Natural Area, helping to determine the Reserve’s own resource preservation goals and those of adjacent lands. Natural processes of ecosystem disturbance and change function unimpeded, and are altered only as needed to provide for visitor and staff safety and access, to protect Reserve facilities in developed areas, and to maintain cultural landscapes. “Purification” services provided by Reserve ecosystems are protected and maintained, thus helping to provide clean air and water for Reserve resources and the surrounding area. Soil and water resources are free of contaminants. Ecosystems and habitats damaged by human activities or nonnative species are restored. Future development avoids sensitive habitats and dynamic areas prone to natural disturbances, if possible.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Participate in collaborative planning efforts with adjacent land managers and tribal governments to identify common goals, pursue solutions, and build joint data sets through information sharing. • Prepare a land protection strategy for the Reserve. • Maintain intact ecological functions in keystone habitats. • Restore habitats and disturbance regimes that have been altered in the Reserve while balancing needs to conserve threatened and endangered species, maintain existing critical facilities and road access, and provide for public safety. • Protect and, as necessary, restore the natural cycling of nutrients in damaged ecosystems and habitats. • Provide interpretive and educational programs about ecosystem processes, “ecological services,” and methods to sustain these.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

	<p>Law and Policy Source NPS <i>Management Policies 2006</i> (§4.5); Federal Wildland Fire Management Policy; Director's Order 41: Wilderness Stewardship; Director's Order 18: Wildland Fire Management and the accompanying Reference Manual 18: Wildland Fire Management provide guidance on the basic principles and strategic guidelines governing the management of wildland fire by the National Park Service.</p> <p>Desired Conditions Fire management programs will be designed to meet resource management objectives prescribed for the various areas of the Reserve and to ensure that the safety of firefighters and the public are not compromised. All wildland fires are effectively managed, considering resource values to be protected and firefighter and public safety, using the full range of strategic and tactical operations as described in an approved fire management plan. Natural fire regimes are restored and maintained, but will be modified to comply with air quality regulations, and/or to protect listed species, cultural resources, and the safety of life and property. The best available technology and scientific information are used to manage fire within the Reserve, to conduct routine monitoring to determine if objectives are met, and to evaluate and improve the fire management program. Hazard fuel reduction efforts protect structures such as the Nicholson ranch house, Ward ranch house, restrooms and two well housings, public parks-private interface areas, and cultural resources where appropriate and necessary. Recognizing fire as a natural process that does not acknowledge administrative boundaries, land managers develop a comprehensive cross-boundary fire management plan with adjacent land managers, such as the U.S. Forest Service and the Bureau of Land Management.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Maintain a current fire management plan to reflect the most recent wildland fire policy, fire use applications, and the body of knowledge on fire effects within the unit's vegetation types. • Maintain cooperative agreements for fire suppression with appropriate federal, tribal, state, and local agencies and organizations. • Monitor individual prescribed fires to provide information on whether specific objectives regarding smoke behavior, fire effects, etc. are met. • Conduct fire history research and other studies to describe the Reserve's natural fire regime. • Conduct research and monitor the effects of fires in the Reserve to ensure that long-term resource objectives are met. • Consider fire as a management tool to maintain native plant communities and control nonnative species. • Provide information to visitors about the role of fire in northwest ecosystems. <p>Other fire management program goals and objectives from the fire management plan:</p> <ul style="list-style-type: none"> • To suppress unplanned, human-caused ignitions. • To restore and maintain forest composition in selected areas where natural ecosystems have been altered by fire suppression and other human activities.
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TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Native Species
	<p>Law and Policy Source NPS <i>Management Policies 2006</i> (§4.4) calls for the National Park Service to maintain natural ecosystems in parks and to restore native plant and animal populations. NPS <i>Natural Resource Management Reference Manual 77</i> also provides general direction on the restoration of natural resources for the Reserve.</p> <p>Desired Conditions The National Park Service maintains, as parts of the natural ecosystem, all native plants and animals in the Reserve, including all five of the commonly recognized kingdoms of living things (encompassing flowering plants, ferns, mosses, lichens, algae, fungi, bacteria, mammals, birds, reptiles, amphibians, fishes, etc.). The National Park Service strives to protect the full range of genetic types (genotypes) of native plant and animal populations by perpetuating natural evolutionary processes and minimizing human interference with evolving genetic diversity. The National Park Service strives to restore extirpated native plant and animal species to parks when specific criteria are met regarding habitat availability, safety, genetic type, and reason for extirpation. The Reserve provides naturally evolving examples of plant and animal communities. Animal and plant populations in the Reserve are managed to promote long-term viability, including maintaining age-structures, abundance, density, and distributions within normal ranges, and a full range of natural genetic variability. Extirpated native species are restored when feasible. Effects of native diseases and pests are within normal range of variation, and are not worsened by human-caused factors.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Complete an inventory of the plants and animals in the Reserve. Regularly monitor the distribution and condition of selected species that indicate ecosystem condition and diversity. • Develop and implement restoration plans for extirpated species, such as pygmy rabbit, pronghorn antelope, and peregrine falcon, subject to meeting all five criteria required by NPS <i>Management Policies 2006</i> for restoring native species (§4.4.2.2). • Restore native biological communities and habitats. Minimize human impacts on native species, ecosystems, and the processes that sustain them. • Preserve genetic diversity by maintaining the abundance of unique populations at or above levels necessary for genetic variability. • In cooperation with other agencies and tribal governments, preserve healthy populations and provide safe migratory corridors for wide-ranging wildlife populations such as mule deer and elk. • Protect the Reserve's biotic communities from impacts due to human activities and facilities while ensuring that visitors have ample opportunity to visit and enjoy these ecosystems.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Nonnative Species
	<p>Law and Policy Source</p> <p>NPS <i>Management Policies 2006</i> (§4.4) calls for the National Park Service to maintain natural ecosystems in parks and to restore native plant and animal populations. NPS <i>Management Policies 2006</i> (§4.4.5.2) states that each park unit will use an integrated pest management approach to address pest issues. NPS <i>Natural Resource Management Reference Manual 77</i> also provides general direction on the restoration of natural resources for the Reserve. Executive Order 13112, “Invasive Species” provides direction for the management of nonnative species.</p> <p>Desired Conditions</p> <p>Populations of invasive, nonnative plant and animal species are managed, including eradication, wherever such species threaten Reserve resources or public health and when control is prudent and feasible using integrated pest management techniques.</p> <p>Reserve ecosystems are free of nonnative species where feasible, with the exception of noninvasive species that are documented as innocuous, and are a contributing element of a cultural landscape (as defined by <i>The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>).</p> <p>Particularly sensitive habitats in the Reserve, including those containing endemic or rare species, are maintained free of nonnative species.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Complete an inventory of plants, animals and, as feasible, other organisms in the Reserve and regularly monitor the distribution and condition of selected species including invasive nonnative species. • Study the environmental and ecological effects of nonnative species invasion to assess threats, prioritize management actions, and prevent introduction and establishment of nonnative species. • Monitor the condition of native species, populations, and communities that may be vulnerable to nonnative and potentially catastrophic diseases or organisms such as West Nile virus, pine bark beetle, and others. Implement management programs to prevent and develop a long-term program to reverse the destructive effects of nonnative species. • In management zones, limit planting of nonnative species to noninvasive, innocuous plants that are justified by the historic scene or operational needs. • Control or eliminate nonnative plants and animals, diseases, and pest species where there is a reasonable expectation of success and sustainability using integrated pest management techniques. Base control efforts on <ul style="list-style-type: none"> » the potential threat to visitor health or safety » the potential threat to legally protected or uncommon native species and habitats » the potential threat to scenic and aesthetic quality » the potential threat to common native species and habitat • Implement management actions in the Reserve in a manner that minimizes the introduction or increase in invasive nonnative species, both number and type. • Work in cooperation with agencies, tribes, and local communities on nonnative species control. • Provide interpretive and educational programs on the preservation of native species.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Rare, Threatened, and Endangered Species
	<p>Law and Policy Source</p> <p>Under the Endangered Species Act, the National Park Service is mandated to promote the conservation of all federal threatened and endangered species and their critical habitats within park unit boundaries. <i>NPS Management Policies 2006</i> (§4.4.2.3) also call for the agency to survey for, protect, and strive to recover all species native to park units that are listed under the Endangered Species Act. In addition, the National Park Service is directed to inventory, monitor, and manage state-listed species in a manner similar to the treatment of federally listed species, to the greatest extent possible.</p> <p>Desired Conditions</p> <p>Federally listed and state-listed threatened and endangered species and their habitats are protected and sustained. At this time, the Reserve has no federal- or state-listed threatened and endangered species.</p> <p>Native threatened and endangered species populations that have been severely reduced in or extirpated from the unit are restored where feasible and sustainable.</p> <p>Threatened, endangered, or otherwise imperiled species in the Reserve show increasing trends leading to improvement in the species' status and ultimately to recovery. State-listed and federally listed wildlife populations are stable or increasing, as measured by monitored parameters such as survival of specific bat and raptor species and sagebrush obligates and habitat (such as sage grouse).</p> <p>Habitats that support or are suitable for sensitive, rare, endemic, or listed species are protected, such as sagebrush habitat, pinyon-juniper woodland, and functioning and healthy wetland and riparian habitat.</p> <p>If species become listed, visitors to the Reserve learn about species in the Reserve that are listed under the Endangered Species Act, as well as actions that may assist their recovery.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Support research that contributes to management knowledge of rare and protected species and their habitat. Incorporate findings in interpretive and education programs. • Inventory rare or protected species in the Reserve and regularly monitor their distribution, condition, and population trends. Modify management plans to be more effective, based on the results of monitoring. • Manage designated critical habitat, essential habitat, and recovery areas to maintain and enhance their value for listed species, if applicable. • Consult with the U.S. Fish and Wildlife Service to ensure that NPS actions comply with the Endangered Species Act. • If species are listed, implement management actions in the Reserve in a manner that minimizes the potential adverse effect on listed species and their habitat. • Participate in the recovery planning process when appropriate. Cooperate with the U.S. Fish and Wildlife Service to implement recovery plans approved by the agency for any listed species found in the Reserve. • To the greatest extent possible, inventory, monitor, and manage state-listed and locally listed species in a manner similar to federally listed species. • Work with neighboring land and resource managers to obtain information on the status and trends of little-known, but potentially at-risk wildlife species, such as ringtail cat, bobcat, kit fox, and pygmy rabbit. • If species are listed, provide information to visitors regarding listed species that occur in the Reserve and measures to promote their recovery.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Air Quality
	<p>Law and Policy Source</p> <p>The Clean Air Act (42 USC 7401 et seq.) gives federal land managers the responsibility for protecting air quality and air quality related values (AQRVs)— including visibility, plants, animals, soils, water quality, cultural resources, and public health—from adverse air pollution impacts. NPS <i>Management Policies 2006</i> (§4.7) and NPS <i>Natural Resource Management Reference Manual 77</i> provide further direction on the protection of air quality and related values for park units. City of Rocks National Reserve is a Class II air quality area under the Clean Air Act.</p> <p>Desired Conditions</p> <p>Air quality in the Reserve meets national ambient air quality standards for specified pollutants. Ecological values related to air quality are protected against the adverse effects of air pollution. The Reserve's air quality and related values are maintained or improved with little or no deterioration.</p> <p>Visibility is excellent, such that scenic views, including integral vistas and views of landscapes within and outside the Reserve are clear and distant and adhere to visibility standards.</p> <p>Area management and visitor service activities promote preservation of excellent air quality, including healthful indoor air quality in Idaho facilities.</p> <p>Views from Reserve overlooks, integral vistas, and scenic stops are not obstructed or marred by air pollution for most of each year.</p> <p>Air quality monitoring within or near the Reserve is able to verify whether trends are improving or deteriorating, and whether air quality standards are met within the Reserve.</p> <p>Air pollution ecological effects research and monitoring confirms air quality related values are not being impacted by air pollution.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Cooperate with local air pollution control authorities, the Idaho Department of Environmental Quality, and the U.S. Environmental Protection Agency (EPA) to monitor air quality, including visibility, and ensure that these authorities maintain high-quality characteristics consistent with EPA, state, and local standards. • Inventory and monitor air quality related values associated with the Reserve. Establish baseline conditions for and monitor native plants or other species that may be sensitive to air pollution. • Evaluate air pollution impacts on air quality related values and identify causes. • Participate in federal, regional, and local air pollution control plans and drafting of regulations, and coordinate with the NPS Air Resources Division to review permit applications for major new air pollution sources that may affect the Reserve. • Through timing and appropriate equipment, minimize air pollution emissions associated with Reserve operations and visitor use activities. Use and demonstrate sustainable practices and pollution prevention measures in Reserve operations. Encourage best available practices and technologies to provide healthful indoor air quality at IDPR facilities. • Form regional partnerships to develop alternative transportation systems and promote clean fuels. • Provide information regarding air quality and related values to Reserve visitors and encourage them to reduce their air pollution emissions. • Conduct and assist research on air quality related values to learn about effects of local and long-range atmospheric deposition on plants, soils, and wetlands within the Reserve. Determine changes in ecosystem function caused by atmospheric deposition and assess the resistance and resilience of native ecosystems to the effects of air pollution. • Protect air quality at the highest level possible under the Clean Air Act by working cooperatively with the State of Idaho to change the Reserve's designation from a Class II to a Class I air quality area. • Work to meet the NPS Pacific West Region's "carbon neutral" goal as soon as possible.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Geologic and Soil Resources
	<p>Law and Policy Source NPS <i>Management Policies 2006</i> (§4.8) and NPS <i>Natural Resource Management Reference Manual 77</i> provide general direction on the protection of geologic and soil resources, including geologic features and geologic processes. Other pertinent laws and policies include the 1988 Federal Cave Resources Protection Act and 1976 Mining in the Parks Act.</p> <p>Desired Conditions The Reserve's geologic resources are preserved and protected as integral components of the Reserve's natural systems. The National Park Service actively seeks to understand and preserve the soil resources of the Reserve, and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or the soil's contamination of other resources. Natural soil resources and processes function in as natural a condition as possible, except where special considerations are allowable under policy. Monitoring and research programs assess conditions and trends in the Reserve's geoindicators, particularly those that are both important to the Reserve's ecosystem and management, and subject to human influence (such as groundwater chemistry, streamflow, stream channel morphology, sediment load, slope failures, and erosion). Surficial geology is mapped for priority areas and critical habitats.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Assess the impacts of natural processes and human-related events on geologic and soil resources and restore as warranted. • Partner with the U.S. Geological Survey and others to identify, address, and monitor geologic hazards. • Collect baseline information on soils and develop surficial geology maps for sensitive or priority areas. • Develop a plan to address geologic and soil research, inventory, and monitoring. • Update geologic history of the Reserve, using modern theory and techniques. • Update geologic interpretations at interpretive stops or displays. • Identify interpretive themes or other opportunities for interpreting the notable geologic events or processes that are preserved, exposed, or occur in the Reserve. • Prevent or minimize adverse, potentially irreversible impacts on soils. Possibly implement soil conservation and soil amendment practices to reduce impacts, and import clean off-site soil, or use soil amendments as necessary to restore damaged sites. • Minimize soil excavation, erosion, and off-site soil migration during and after any ground-disturbing activity. • Survey areas of the Reserve with soil resource problems and take actions appropriate to the management prescription to prevent or minimize further erosion, compaction, or deposition. • Apply effective best management practices to problem soil erosion and compaction areas in a manner that stops or minimizes erosion, restores soil productivity, and reestablishes or sustains self-perpetuating vegetative cover.

**TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED
FROM LAWS, REGULATIONS, AND POLICIES**

Natural Resources	Water Resources
	<p>Law and Policy Source</p> <p>NPS <i>Management Policies 2006</i> (§4.6.1, 4.6.2) calls for the National Park Service to perpetuate surface and groundwater as integral components of park aquatic and terrestrial ecosystems. NPS <i>Natural Resource Management Reference Manual 77</i> provides further direction on the management of water quantity on parks, stating the National Park Service will manage and use water to protect resources, accommodate visitors, and administer park units within legal mandates. The Clean Water Act strives to restore and maintain the integrity of U.S. waters, which includes waters found in the recreation area. Other law and policy guidance include the Rivers and Harbors Act; Executive Order 11514, "Protection and Enhancement of Environmental Quality"; and Executive Order 12088, "Federal Compliance with Pollution Control Standards."</p> <p>Desired Conditions</p> <p>Surface water and groundwater are protected, and water quality meets or exceeds all applicable water quality standards.</p> <p>NPS-permitted programs and facilities and Reserve facilities are maintained and operated to avoid pollution of surface water and groundwater.</p> <p>Water resources in the Reserve meet or exceed all federal and state water quality standards for temperature, bacteria, dissolved oxygen, turbidity, toxic substances, pH, and nutrients.</p> <p>Pollution prevention and protection of water quality to meet the needs of aquatic organisms are priorities.</p> <p>Almost all Reserve water resources meet state criteria for outstanding water resources.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Work with appropriate agencies and partners to determine minimum flow needs and to attain the highest possible water quality standards available under the Clean Water Act for waters in the Reserve, or waters affecting Reserve resources. • Develop and implement an environmental management plan that includes pollution prevention and environmental best management practices. • Promote water conservation through the National Park Service, Idaho Department of Parks and Recreation, partners, visitors, and Reserve neighbors. • Apply best management practices to all pollution-generating activities and facilities in the Reserve and take positive steps to reduce such activities. • Minimize the use of pesticides, fertilizers, and other chemicals, and manage them in keeping with NPS policy and federal regulations. • Monitor water flows and water quality in selected areas. • Conduct water quality monitoring and research to target detection of change from atmospheric input in selected Reserve streams. • Manage stormwater runoff appropriately. • Encourage public support for and participation in protecting watersheds to promote greater public understanding of water resources at City of Rocks National Reserve. • Monitor groundwater levels (measure aquifer water table elevation).

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Streams and Floodplains
	<p>Law and Policy Source Floodplains are protected and managed in accordance with Executive Order 11988, "Floodplain Management"; NPS Director's Order 77-2: <i>Floodplain Management</i> and its accompanying procedural manual; and NPS <i>Management Policies 2006</i> (§4.6.4).</p> <p>Desired Conditions Natural floodplain values are preserved or restored. Long-term and short-term environmental effects associated with the occupancy and modification of floodplains are avoided when practicable. When it is not practicable to locate or relocate development or inappropriate human activities to a site outside the floodplain, the National Park Service prepares and approves a statement of findings in accordance with Director's Order 77-2 uses nonstructural measures as much as practicable to reduce hazards to human life and property while minimizing impacts on the natural resources of floodplains, ensures that structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR 60) The most current engineering methods and techniques that minimize adverse effects on natural stream processes are used to protect Reserve roads and facilities located in floodplains. Visitors understand the dynamic nature of the Reserve's stream systems and the variability of flow and sediment movement after storms.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Identify riparian corridors where stream bank failure could occur during flash floods and any administrative, maintenance, operational, or visitor facilities located within them. • Inventory flood-prone areas near facilities and roads and develop a program to proactively protect these using the most current techniques that minimize adverse effects on aquatic and riparian habitats and fluvial processes. • Locate any new facilities to avoid floodplains. If avoiding floodplains is not feasible, undertake other actions to comply with Executive Order 11988, "Floodplain Management"; NPS Director's Order 77-2 and its accompanying procedural manual; and NPS <i>Management Policies 2006</i> (§4.6.4). • Work with area partners, including tribes, federal, state, and county agencies, and others, to develop restoration plans for at-risk river systems. Use current technologies, over time, to restore or improve floodplain and riparian functions altered in the past by bank-hardening techniques. • Provide information to visitors regarding stream processes and natural flooding regimes. • Although grazing and trailing of cattle are currently allowed in all management zones except for the Research Natural Area, steps would continue to be taken to keep cattle out of streams by fencing.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Wetlands
	<p>Law and Policy Source</p> <p>Wetlands are protected and managed in accordance with the Clean Water Act; Rivers and Harbors Act; Executive Order 11514, "Protection and Enhancement of Environmental Quality"; Executive Order 11990, "Protection of Wetlands"; NPS <i>Natural Resource Management Reference Manual 77</i>; NPS Director's Order 77-1: <i>Wetland Protection</i> and its accompanying procedural manual; and NPS <i>Management Policies 2006</i> (§4.6.5).</p> <p>Desired Conditions</p> <p>Natural and beneficial values of wetlands are preserved and enhanced.</p> <p>The National Park Service implements a "no net loss of wetlands" policy and strives to achieve a longer-term goal of net gain of wetlands across the national park system through the restoration of previously degraded wetlands.</p> <p>To the extent possible, the National Park Service avoids long-term and short-term adverse impacts associated with the destruction or modification of wetlands, and avoids direct or indirect support of new construction in wetlands wherever there is a practicable alternative.</p> <p>The National Park Service compensates for remaining unavoidable adverse impacts on wetlands by restoring wetlands that have been previously degraded.</p> <p>"Keystone" species that sustain and depend upon wetland habitats occur in natural distribution and numbers.</p> <p>Reserve visitors have the opportunity to learn about and understand the unique services and functions provided by wetlands.</p> <p>Wetlands near developed areas remain unaffected by maintenance of Reserve facilities or management or recreational activities.</p> <p>Wetlands adversely affected by prior human activity are restored where feasible.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Inventory wetlands within the Reserve and monitor their conditions. The distinct functions they perform are identified. • Locate any new facilities, or relocate existing facilities to avoid or restore wetlands if feasible. If avoiding wetlands is not feasible, undertake other actions such as compensation to comply with Executive Order 11990, "Protection of Wetlands"; the Clean Water Act; and Director's Order 77-1: Wetland Protection. • Prepare a statement of findings if proposed actions would result in adverse impacts on wetlands, including an analysis of alternatives, delineation of the wetland, a wetland restoration plan, mitigation, and a functional analysis of the impact site and restoration sites. • Complete wetland inventories, and include this information in the planning, management, and protection of wetlands. Reserve staff would conduct systematic surveys of Reserve watersheds. • Encourage the use of wetlands for educational and scientific purposes that do not disrupt natural wetland functions. • Participate in collaborative planning efforts to protect and restore wetlands within and outside the boundaries through cooperative conservation strategies along with adjacent land managers and tribal governments. • Although grazing and trailing of cattle are currently allowed in all management zones except in the Research Natural Area, steps would be taken to ensure that cattle are fenced out of riparian areas.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Lightscape Management / Night Sky
	<p>Law and Policy Source</p> <p>NPS <i>Management Policies 2006</i> (§4.10), recognizes that natural lightscapes are natural resources and values that contribute to the visitor experience. The policy further states that the Reserve staff will seek to minimize the intrusion of artificial light into the night scene. In natural areas, artificial outdoor lighting will be limited to meet basic safety requirements, will be shielded when possible, and will employ other minimum impact techniques.</p> <p>Desired Conditions</p> <p>Natural darkness and other components of the natural lightscape in the Reserve are protected. The National Park Service will seek the cooperation of Reserve visitors, neighbors, and local government agencies to prevent or minimize the intrusion of artificial light into the night scene of the ecosystems of the Reserve.</p> <p>The Reserve's inventory of natural resources identifies ecological processes or components that uniquely depend upon or are affected by nighttime light.</p> <p>Artificial light sources in the Reserve's developed areas are designed to prevent light pollution and should set an example to the public of night-sky and wildlife-friendly lighting.</p> <p>Throughout a majority of the Reserve, visitors have opportunities to experience a naturally dark night sky free of light pollution.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • The Reserve will cooperate with Reserve visitors, neighbors, and local government agencies to find ways to prevent or minimize the intrusion of artificial light into the night scene in the Reserve. • In developed areas, artificial outdoor lighting will be limited to basic safety requirements and will be designed to minimize impacts on the night sky. • Reserve staff will evaluate the impacts on the night sky caused by Reserve operations. If light sources in the Reserve are affecting night skies, the staff will consider alternatives such as shielding lights, changing lamp types, reducing intensity, reducing time of operation, or eliminating unnecessary sources. Alternatives such as wayfinding markers and the use of portable flashlights will be examined. • The Reserve will develop lighting zones to delineate where outdoor lighting is appropriate, what type of lighting is needed, and match outdoor lighting to visitor expectations and basic safety needs. • Guidelines will be developed that articulate best management practices for mitigating light pollution. • Night sky quality will be inventoried and tracked as feasible by Reserve staff for NPS Night Sky Program. • Interpretive programs and materials will be provided to help visitors understand the role and value of natural lightscape to communicate the status of natural lightscapes within the Reserve and to communicate what can be done to protect this resource.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Natural Resources	Natural Soundscape
	<p>Law and Policy Source NPS <i>Management Policies 2006</i> (§4.9) and NPS Director's Order 47: <i>Soundscape Preservation and Noise Management</i> require park managers to preserve the natural soundscape associated with the physical and biological resource components of the Reserve, such as the sounds of the wind in the trees and birds singing.</p> <p>Desired Conditions The National Park Service preserves the natural ambient soundscape, restores degraded soundscape to the natural ambient condition wherever possible, and protects the natural soundscape from degradation due to noise (such as inappropriate/undesirable human-caused sound). Noise from management or recreational uses is minimized to provide a high-quality visitor experience and protect biological resources and processes that rely on sound (for example intraspecies communication, courtship, predation and predator avoidance, and effective use of habitat). The acoustical environment remains unimpaired. Natural sounds predominate in the park. Noise would not affect appropriate transmission of natural sounds. Visitors have opportunities to experience, understand, and appreciate the Reserve's natural soundscape. The Reserve monitors key locations throughout the Reserve to ensure protection of the natural soundscape. The Reserve uses best available technology and methods to minimize or mitigate artificial noises produced by equipment and management activities.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Monitor and prevent or minimize unnatural sounds that adversely affect Reserve resources or values or visitors' enjoyment of them. • Require Reserve staff, contractors, guides and outfitters, and tour bus companies to comply with measures designed to reduce noise levels. • Minimize noise generated by NPS management activities by moderating administrative functions such as the use of motorized equipment. • Encourage visitors to avoid unnecessary noise, such as minimizing the use of generators and maintaining quiet hours in the campgrounds. • Provide interpretive programs and materials to help visitors understand the role of natural sounds and the value of the Reserve's soundscape.
Natural Resources	Scenic Resources/Viewsheds
	<p>Law and Policy Source NPS Organic Act and NPS <i>Management Policies</i> (§1.4, 1.6, 3.1) call for the National Park Service to conserve and protect scenery and scenic vistas.</p> <p>Desired Conditions The scenic views at the Reserve continue to stir imaginations, inspire, and provide opportunities for visitors to understand, appreciate, and forge personal connections to the California National Historic Trail and the adjacent Northern Basin and Range Ecosystem. The visual integrity of the California National Historic Trail corridor remains protected. Intrinsically important scenic vistas and scenic features are not significantly diminished by man-made developments both within and beyond the Reserve. A natural visual setting is retained.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Work with adjacent and nearby landowners and agencies to minimize any visual impacts from nearby developments and to ensure that developments do not encroach on the Reserve.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Archeological Resources
	<p>Law and Policy Source Antiquities Act of 1906; Historic Sites Act of 1935; National Historic Preservation Act of 1966, as amended; Archaeological Resources Protection Act of 1979, as amended; <i>The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation</i>; Programmatic Agreement among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act (2008); NPS <i>Management Policies</i> 2006 (§5.3.5.1); and Director's Order 28: <i>Cultural Resource Management</i> call for the National Park Service to manage archeological resources in situ unless physical disturbance is justified and mitigated by data recovery or other means in concurrence with the state historic preservation officer. See also 36 CFR Part 79 and <i>The Secretary of the Interior's Standards and Guidelines for Archeological Documentation</i>.</p> <p>Desired Conditions Survey for the identification of archeological sites is complete and documentation including determinations of eligibility is finished. Archeological sites are protected in an undisturbed condition unless it is determined through formal processes that disturbance or natural deterioration is unavoidable. Plans for addressing known impacts are drafted and implemented. When disturbance or deterioration is unavoidable, the site is professionally documented and excavated, and the resulting artifacts, materials, and records are curated and conserved through consultation and formal agreements with the Idaho State Historic Preservation Office, Advisory Council on Historic Preservation, and American Indian tribes when the site is associated with one of the affiliated tribes. Interpretation of the human past is provided for visitors once consultation with affiliated tribes and the state historic preservation office is completed. Archeological site baseline data are available. Site conditions are monitored to record changes in resource conditions as a result of environmental conditions or visitor use impacts. Archeological resources degrading from environmental conditions and visitor impacts are mitigated through data recovery or other preservation strategies, including site-hardening.</p>

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Archeological Resources
	<p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Develop an archeology management plan addressing specific needs for inventory, documentation, and research in consultation with affiliated tribes and the state historic preservation office. • Survey and inventory archeological sites throughout the Reserve; determine and document their significance (including determinations of eligibility [DOEs]) consistent with The Secretary of the <i>Interior Standards for Archeology and Historic Preservation</i>. • Treat all archeological resources as eligible for listing in the National Register of Historic Places pending a formal determination by the National Park Service, the state historic preservation office, and associated Indian tribes as to their significance. • Determine which archeological sites should be added to the Archeological Sites Management Information System and the National Register of Historic Places. • Conduct field work. • Gather field data regarding habitation sites, rock shelters, lithic scatters, hunting camps, gathering areas, and other resources to develop a more accurate predictive model of American Indian site distribution and to address related research questions. • Inventory, evaluate, and manage archeological resources that reflect late 19th century and early 20th century activities, such as mining sites, homestead sites, cabin remains, and associated trash dumps. Resources eligible for the National Register of Historic Places will be documented and listed. • Monitor sites, as needed, on a case-by-case basis monthly, annually, or biannually. • Educate visitors on regulations governing protection and conservation of archeological resources. • Document, track, and prosecute for violations of archeology laws, including the Archaeological Resources Protection Act, associated with removal or transport.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Historic Structures
	<p>Law and Policy Source</p> <p>The Antiquities Act of 1906, and the National Historic Preservation Act of 1966, as amended, call for analyzing the effects of possible federal actions on historic structures in, or eligible for, the National Register of Historic Places and for inventorying and evaluating their significance and condition. A Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with section 106 of the National Historic Preservation Act (2008) and NPS <i>Management Policies 2006</i> (§5.3.5.4) call for the treatment of historic structures, including prehistoric ones, to be based on sound preservation practice to enable the long-term preservation of a structure's historic features, materials, and qualities. All treatment of historic structures must comply with <i>The Secretary of the Interior's Standards for the Treatment of Historic Properties</i>. Also See also Director's Order 28: <i>Cultural Resource Management</i>.</p> <p>Desired Conditions</p> <p>Historic structures are inventoried and their significance and integrity are evaluated under National Register of Historic Places criteria.</p> <p>The qualities that contribute to the listing, or eligibility for listing, of historic structures in the National Register of Historic Places are protected in accordance with <i>The Secretary of the Interior's Standards and for the Treatment of Historic Properties</i>, unless it is determined through a formal process that disturbance or natural deterioration is unavoidable.</p> <p>The historic character of historic buildings and structures are managed in accordance with section 5.3.5.4 of NPS <i>Management Policies 2006</i>.</p> <p>Historic structure inventories and reports are prepared and existing reports amended as needed. Actions identified in historic structure reports are implemented and a record of treatment added to the reports.</p> <p>Identified and evaluated historic structures are monitored, inspected, and managed to enable the long-term preservation of a resource's historic features, qualities, and materials.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Employ the comprehensive maintenance, protection, and preservation measures in accordance with <i>The Secretary of the Interior's Standards for the Treatment of Historic Properties</i>. For properties lacking specific plans, preservation actions would be based on the Secretary's standards and NPS policy and guidelines. • Treat all historic structures as eligible for listing in the National Register of Historic Places pending formal determination by the National Park Service and state historic preservation office. • Create design guidelines and/or historic structure reports for all developed areas in the park to preserve the character-defining features. Include design review oversight to ensure the compatibility of new planning, design, and construction. • Pursue basic preservation maintenance activities to avoid costly rebuilding or reconstruction of historic structures or cultural landscapes. • Before modifying any historic structure in the National Register of Historic Places, consult with the state historic preservation office and the Advisory Council for Historic Preservation, as appropriate.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Resources and Park-associated Communities
	<p>Law and Policy Source</p> <p>NPS <i>Management Policies 2006</i> states that “[T]he Park Service will maintain a program of professional cultural anthropological/ethnographic research designed to provide NPS managers with information about relationships between park resources and associated peoples” (§5.3.5.3.3). When research is conducted, it will be done to identify park-associated communities and to initiate collaboration with them. Findings will then be used to inform planning, resource management, decision-making, interpretation, and to assist managers in meeting “responsibilities to associated peoples (communities) and other stakeholders in the outcomes of NPS decisions.” The National Park Service, as with all federal agencies, has responsibilities to all associated communities and stakeholders, but also has unique responsibilities to federally recognized tribes. A sampling of relevant laws, federal regulations, and other instruments are cited in the “Law and Policy Source” sub-section under “Government-to-Government Relations with American Indian Tribes” to avoid redundancy.</p> <p>Antiquities Act of 1906; American Indian Religious Freedom Act; Native American Graves and Repatriation Act; Executive Order 13007, “Indian Sacred Sites”; and NPS <i>Management Policies 2006</i> (§5.3.5.3) call for gathering ethnographic information through anthropological and collaborative community research that recognizes the sensitive nature of such cultural data and documents and the meanings that traditionally associated groups assign to traditional natural and cultural resources and the landscapes they form. In accordance with the National Historic Preservation Act of 1966, as amended, the purpose is to preserve, conserve, and encourage the continuation of the diverse traditional prehistoric, historic, ethnic, and folk cultural traditions that underlie and are a living expression of American heritage as manifested in the traditional use of ethnographic resources in park units. Executive Order 13007 also calls for NPS managers to accommodate the access to and the ceremonial use of American Indian sacred sites by practitioners and to preserve the sites’ physical integrity.</p> <p>Desired Conditions</p> <p>Appropriate cultural anthropological research is conducted with traditionally associated tribes and other groups who have lived in or used resources in the Reserve “[T]o the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions” (Executive Order 13007) and “the National Park Service accommodates access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoids adversely affecting the physical integrity of these sacred places.”</p> <p>All executive agencies are required to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments before taking actions that affect federally recognized tribal governments. American Indians and other individuals and groups linked by ties of kinship or culture to ethnically identifiable human remains, sacred objects, objects of cultural patrimony, and associated funerary objects are consulted when such items may be disturbed or are encountered on park lands.</p> <p>All ethnographic resources determined eligible for listing or listed in the National Register of Historic Places are protected. If disturbance of such resources is unavoidable, formal consultation with the state historic preservation office and the Advisory Council on Historic Preservation, and with American Indian tribes, as appropriate, is conducted.</p> <p>The identities of tribal and other consultants and information they may provide about sacred and other culturally sensitive sites, places, and practices are kept confidential as appropriate in terms of complying with all applicable laws, agreements with consultants or other circumstances.</p> <p>Potentially sensitive natural and cultural resources and traditional cultural properties (ethnographic resources eligible for the National Register of Historic Places) are identified, recorded, and evaluated through consultation with area tribes. The integrity of traditional cultural properties is preserved and protected.</p> <p>Positive and productive government-to-government relationships exist with each of the Shoshone-Bannock Tribes that have traditional association with the Northern Basin and Range Ecosys stem.</p>

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Resources and Park-associated Communities
	<p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Survey and inventory ethnographic resources and document their significance. • Treat all ethnographic resources as eligible for listing in the National Register of Historic Places pending a formal determination by the National Park Service and the state historic preservation office. Any formal nomination would be made only with the full support and consensus of the associated tribes. • Continue to encourage the employment of American Indians on the Reserve staff to improve communications and working relationships and encourage cultural diversity in the workplace. • Conduct consultation with associated Indian tribes in terms of section 106 of the National Historic Preservation Act and planning processes for this and other planning efforts. • Continue to work collaboratively with the tribes when conducting research related to the resources they value.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Cultural Landscapes
	<p>Law and Policy Source</p> <p>Antiquities Act of 1906; Historic Sites Act of 1935; National Historic Preservation Act of 1966, as amended; Executive Order 11593, "Protection and Enhancement of the Cultural Environment"; <i>The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>; Programmatic Agreement among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act (2008); and NPS <i>Management Policies 2006</i> (§5.3.5.2) call for the preservation of the physical attributes, biotic systems, and uses of cultural landscapes that contribute to historical significance.</p> <p>Desired Conditions</p> <p>Cultural landscape inventories are conducted to identify landscapes potentially eligible for listing in the National Register of Historic Places and to assist in future management decisions for landscapes and associated resources, both cultural and natural.</p> <p>The management of cultural landscapes focuses on preserving the landscape's physical attributes, biotic systems, and use when that use contributes to its historical significance.</p> <p>The preservation, rehabilitation, restoration, or reconstruction of cultural landscapes is undertaken in accordance with <i>The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>.</p> <p>The cultural landscapes of the Reserve retain a high degree of integrity.</p> <p>Cultural landscape inventories and reports are prepared, and existing reports are amended as needed.</p> <p>Identified and evaluated cultural landscapes are monitored, inspected, and managed to enable the long-term preservation of a resource's historic features, qualities, and materials.</p> <p>Actions identified in cultural landscape reports are implemented, and a record of treatment is added to the reports.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Treat cultural landscapes that are potentially eligible for listing in the National Register of Historic Places as eligible until a formal determination is made (by the National Park Service and state historic preservation office). • Comply with cultural resource protection and preservation policies and directives, for the maintenance of cultural landscapes. • Create design guidelines and/or cultural landscape reports for all developed areas in the park to ensure that the character-defining features of these landscapes are preserved. These guidelines would include provisions for design review oversight to ensure the compatibility of new planning, design, and construction. • Where and when possible, work to remove man-made structures or features that do not contribute to the cultural landscape or facilitate the visitor's experience of the priority landscape. • Emigrant inscriptions, which are a significant cultural feature of the Reserve, will be managed to NPS standards.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Museum Collections
	<p>Law and Policy Source Antiquities Act of 1906; Historic Sites Act of 1935; American Indian Religious Freedom Act; Archaeological Resources Protection Act; Native American Graves and Repatriation Act; National Historic Preservation Act; Museum Act of 1955 (16 USC 18f, 18f2-3); Director's Order 24: <i>NPS Museum Collections Management</i>; NPS <i>Museum Handbook</i>; Executive Order 11593, "Protection and Enhancement of the Cultural Environment"; <i>The Secretary of the Interior's Standards and Guidelines for the Treatment of Historic Properties</i>; and the Programmatic Agreement among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act (2008). NPS <i>Management Policies 2006</i> (§5.3.5.5) states that the National Park Service "will collect, protect, preserve, provide access to, and use objects, specimens, and archival and manuscript collections . . . in the disciplines of archeology, ethnography, history, biology, geology, and paleontology to aid understanding among park visitors, and to advance knowledge in the humanities and sciences."</p> <p>Desired Conditions All museum collections (objects, specimens, and manuscript collections) are identified and inventoried, catalogued, documented, preserved, and protected. Provision is made for access to and use of the Reserve's museum collections for exhibits, research, and interpretation. The qualities that contribute to the significance of collections are protected in accordance with established standards. Research and development projects include plans for the curation of collected objects and specimens. The Reserve's museum collections are housed in appropriate facilities that provide protection for current collections and allow for future collection expansion. Reserve museum collections provide documentation of Reserve's natural and cultural resources.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Inventory and catalog all Reserve museum collections in accordance with standards in the <i>NPS Museum Handbook</i>. • Develop and implement a collection management program according to NPS standards to guide the protection, conservation, and use of museum objects. • Continue outreach efforts to Reserve visitors, provide access to and give tours of the collections to the community, and provide field assistance with Reserve research projects as needed. • Collections facilities would be upgraded, improved, and expanded according to the recommendations of the <i>City of Rocks National Reserve Museum Management Plan 2008</i>. • Provide efficient access to reference materials and information. • Meet requirements of Director's Order 24: <i>NPS Museum Collections Management</i>, the <i>NPS Museum Handbook</i>, and "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79). • Continue the relationship with Hagerman Fossil Beds for curatorial support.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Cultural Resources	Government to-Government Relations with American Indian Tribes
	<p>Law and Policy Source</p> <p>In accordance with the Presidential Memorandum of April 29, 1994, and Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments," "the Service [NPS] will maintain a government-to-government relationship with federally recognized tribal governments. This means that NPS officials will work directly with appropriate tribal government officials whenever plans or activities may directly or indirectly affect tribal interests, practices, and/or traditional use areas such as sacred sites" (NPS <i>Management Policies</i> 2006, §1.11.1). This policy facilitates compliance with a variety of laws, federal regulations, and other legal instruments such as the National Historic Preservation Act; the National Environmental Policy Act; "Protection of Historic Properties" (36 CFR 800); the American Indian Religious Freedom Act; the Native American Graves Protection and Repatriation Act; Executive Order 13007, "Indian Sacred Sites"; Presidential Memorandum on Tribal Consultation, November 5, 2009; Secretarial Order No. 3317, Department of the Interior Policy on Consultation with Indian Tribes, December 1, 2011; and, Department of the Interior Policy on Consultation with Indian Tribes.</p> <p>Desired Conditions</p> <p>The National Park Service and tribes culturally affiliated with City of Rocks National Reserve maintain ongoing government-to-government consultation. IDPR and NPS managers and staff respect the viewpoints and needs of the tribes, continue to promptly address conflicts that occur, and consider American Indian values in Reserve management and operation.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Meet and communicate with tribal officials to identify problems and issues of mutual concern and interest and work together to take actions to address these concerns. • Keep tribal officials informed of planning and other actions in the Reserve that could affect the tribes. • Provide technical assistance to the tribes, upon request, including sharing information and resources, to address problems and issues of mutual concern. • Recognize the past and present existence of native peoples in the region and the traces of their land use and occupation as an important part of the cultural environment to be researched, preserved, and interpreted, if appropriate. • Consult with all tribes traditionally associated with the Reserve to develop and accomplish the programs of the Reserve in a way that respects the beliefs, traditions, and other cultural values of the tribes with ties to NPS lands. • Accommodate access to traditionally used areas in ways consistent with Reserve purposes and American Indian values and that avoid adversely affecting the physical integrity of such sites and resources. • Conduct appropriate ethnographic, ethnohistorical, or cultural anthropological research in conjunction with, and in cooperation with American Indian tribes traditionally associated with the Reserve and cooperate as appropriate in light of law and policy with any continuation of subsistence activities.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Climate Change	Climate Change
	<p>Law and Policy Source Executive Order 13423, Executive Order 13514, DOI Secretarial Order 3226, DOI Secretarial Order 3289, Climate Change Response Strategy, NPS Climate Change Action Plan 2012–2014, PWR Climate Change Response Strategy, and <i>PWR Vision for Climate Change</i>.</p> <p>Desired Conditions (Source: Secretarial Order 3226) The park would work together with other federal, state, tribal, and local governments, and private landowner partners to develop strategies at multiple scales, including landscape-level strategies, for understanding and responding to climate change impacts. Reserve staff considers and analyzes potential climate change impacts when undertaking long-range planning exercises, setting priorities for scientific research and investigations, and/or when making major decisions affecting natural and cultural resources. The park would engage in partnerships to implement projects and activities that contribute to the conservation of species, natural communities, and lands and waters placed at risk by changing climate conditions. (Source: Secretarial Order 3289) Continue to provide and foster state-of-the art science to better understand the impacts of climate change and to develop science-based adaptive management strategies for natural and cultural resource managers. Continue to minimize the park's contributions to climate change and implement strategies to improve sustainability and energy efficiency, and decrease the park's carbon footprint and consumption of resources.</p> <ul style="list-style-type: none"> • Develop, prioritize, and implement management strategies to preserve climate-sensitive cultural resources. <p>Include climate-related vulnerability assessments in project approval and funding decisions. Enhance the sustainable maintenance, design, and construction of park infrastructure. Substantially reduce the National Park System's carbon footprint from 2008 levels by 2016 through aggressive commitment to greener operations. Integrate climate change mitigation into NPS business practices and culture. Incorporate biological carbon sequestration as a mitigation option where it is consistent with the NPS mission. Coordinate and distribute climate change information throughout the National Park Service. Increase climate change knowledge and understanding within the National Park Service. Provide external communications about the implications of climate change and the NPS response. Model and communicate sustainable practices that lead by example.</p>

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Climate Change	Climate Change
	<p>Potential Management Strategies</p> <p>(Source: <i>PWR Vision for Climate Change</i>)</p> <ul style="list-style-type: none"> • Meet or exceed the requirements of EO 13423. • Meet or exceed the goals of the Federal Green Challenge. • Follow regional policy and guidance on sustainable energy, water, fuel, fleet, buildings, waste, and purchasing practices. • Inventory park emissions, develop climate action plans, and implement climate friendly actions within the Environmental Management Systems framework. <p>(Source: <i>NPS Climate Change Response Strategy</i>)</p> <ul style="list-style-type: none"> • Use the best available scientific data and knowledge to inform decision-making in regard to climate change. • Collaborate with partners to develop, test, and distribute the best results from climate change models to inform NPS activities. • Work with others to inventory and monitor key attributes of the natural resources, cultural resources, and visitor experiences likely to be impacted by climate change. • Systematically assess the vulnerability of these resources to climate change. • Acquire, provide, and apply scientific information to reduce the National Park System's carbon footprint. • Incorporate climate change considerations and responses in all levels of the NPS planning framework. • Implement adaptation strategies that promote ecosystem resilience and enhance restoration, conservation, and preservation of park natural resources. • Develop, prioritize, and implement management strategies to preserve climate-sensitive cultural resources. • Include climate-related vulnerability assessments in project approval and funding decisions. • Enhance the sustainable maintenance, design, and construction of park infrastructure. • Substantially reduce the National Park System's carbon footprint from 2008 levels by 2016 through aggressive commitment to greener operations. • Integrate climate change mitigation into NPS business practices and culture. • Incorporate biological carbon sequestration as a mitigation option where it is consistent with the NPS mission. • Coordinate and distribute climate change information throughout the National Park Service. • Increase climate change knowledge and understanding within the National Park Service. • Provide external communications about the implications of climate change and the NPS response. • Model and communicate sustainable practices that lead by example.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Visitor Use and Recreation	Visitor Opportunities
	<p>Law and Policy Source</p> <p>The NPS Organic Act; NPS General Authorities Act; Code of Federal Regulations, Title 36; Americans with Disabilities Act; Architectural Barriers Act; Rehabilitation Act; and NPS <i>Management Policies 2006</i> (§1.4, 8.1) all address the importance of national park units being available to all Americans to enjoy and experience. Current laws, regulations, and policies leave considerable room for judgment about the best mix of types and levels of visitor use activities, programs, and facilities. For this reason, most decisions related to visitor experience and use are addressed in the alternatives. However, all visitor use of the national park system must be consistent with the following guidelines.</p> <p>Desired Conditions</p> <p>Reserve resources are conserved unimpaired for the enjoyment of future generations. Visitors have opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the Reserve. No activities occur that would cause derogation of the values and purposes for which the Reserve has been established.</p> <p>Visitors will have opportunities to understand and appreciate the significance of the Reserve and its resources, and to develop a personal stewardship ethic.</p> <p>To the extent feasible, programs, services, and facilities in the Reserve are accessible to and usable by all people, including those with disabilities.</p> <p>For all zones or districts in the Reserve, the types and levels of visitor use are consistent with the desired resource and visitor experience conditions prescribed for those areas.</p> <p>The Reserve visitor is able to obtain visitor orientation and trip-planning information through a variety of media. Educational programs are available.</p> <p>Frontcountry day use visitation and overnight facilities are provided in some developed areas. Roads, trails, campgrounds, and related facilities are provided, but locations and numbers may be modified for resource protection, restoration, visitor experience, or increased visitation.</p> <p>The level and type of commercial guided activities would be managed to protect Reserve resources and the visitor experience.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • For all zones, districts, or other logical management divisions in the Reserve, identify visitor carrying capacities for managing public use and ways to monitor and address unacceptable impacts on Reserve resources and visitor experiences. • Monitor visitor comments on issues such as crowding, encounters with other visitors in the backcountry, availability of campsites at busy times of the year, and availability of parking. • Conduct periodic visitor surveys to stay informed of changing visitor demographics and desires to better tailor programs to visitor needs and desires. • Develop outreach programs for and with schools, tribes, and community organizations. • Provide a variety of educational opportunities in the Reserve with continued facility-based contacts and guided activities. Web-based education would be provided. Some activities could be for a fee. • Coordinate educational programs with partners and focus on improving the general understanding of Reserve natural and cultural resources, biodiversity, the protection of resources and natural processes, research, stewardship, Reserve values, and recreational and visitor opportunities.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Visitor Use and Recreation	Public Health and Safety
	<p>Law and Policy Source</p> <p>NPS <i>Management Policies 2006</i> (§8.2.5) states that the saving of human life would take precedence over all other management actions as the National Park Service strives to protect human life and provide for injury-free visits. Other federal statutes and regulations that apply to the protection of public health and safety include Director's Order 50B: <i>Occupational Safety and Health Program</i> and <i>Reference Manual 50B</i>; Director's Order 58: <i>Structural Fire Management</i> and <i>Reference Manual 58</i>; Director's Order 83: <i>Public Health</i> and associated reference manuals; Director's Order 51: <i>Emergency Medical Services</i> and <i>NPS Emergency Medical Services Reference Manual</i>; Director's Order 13B: <i>Solid and Hazardous Waste Management</i> and the accompanying reference manual; and OSHA 29CFR.</p> <p>Desired Conditions</p> <p>While recognizing that there are limitations on its capability to totally eliminate all hazards, the National Park Service and its partners, contractors, and cooperators work together to provide a safe and healthful environment for visitors and employees. The Reserve staff strives to identify recognizable threats to safety and health and protect property by applying nationally accepted standards. Consistent with mandates and nonimpairment, the Reserve staff reduces or removes known hazards or applies appropriate mitigating measures, such as closures, guarding, gating, education, and other actions.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • A documented safety program would be maintained in the Reserve to address health and safety concerns and identify appropriate levels of action and activities. • Maintenance efforts would continue to ensure that all potable water systems and wastewater systems in the Reserve would continue to meet state water quality standards and will follow state water testing procedures as referenced in the Reserve's 2009 operation plan and guidelines for management. • Interpretive signs and materials would be provided as appropriate to notify visitors of potential safety concerns, hazards, and procedures to help provide for a safe visit to the Reserve and to ensure visitors are aware of the possible risks of certain activities. Reserve staff would continue to work with local emergency and public health officials to make reasonable efforts to search for lost persons and rescue sick, injured, or stranded persons.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Management and Operations	Transportation
	<p>Law and Policy Source</p> <p>NPS <i>Management Policies 2006</i> (§9.2) calls for NPS managers to identify solutions to transportation issues that preserve natural and cultural resources while providing a high-quality visitor experience. Management decisions regarding transportation generally require a comprehensive alternatives analysis and thorough understanding of their consequences. The location, type, and design of multimodal transportation facilities (such as roads, bridges, parking areas, sidewalks, bikeways, pedestrian trails, transit centers, and shelters) strongly influence the quality of the visitor experience and the preservation of park unit resources.</p> <p>Desired Conditions</p> <p>Multimodal transportation facilities in the Reserve provide access for the protection, use, and enjoyment of the Reserve's resources.</p> <p>Multimodal transportation facilities preserve the integrity of the surroundings; respect ecological processes; protect natural, cultural and scenic resources; and provide the highest visual quality and a rewarding visitor experience.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Reserve staff would participate in transportation studies and planning processes that may result in links to the Reserve or impacts on Reserve resources. Reserve management would work closely with other federal agencies (such as the U.S. Department of Transportation and the Federal Highway Administration); tribal, state, and local governments (such as the Idaho Department of Transportation); regional planning bodies; citizen groups; and others to enhance partnering and funding opportunities and to encourage effective regional transportation planning. • In general, the preferred modes of transportation would be those that contribute to maximum visitor enjoyment of and minimum adverse impacts on Reserve resources and values. Before a decision is made to design, construct, expand, or upgrade transportation access to or within the Reserve, nonconstruction alternatives—such as distributing visitors to alternative locations—would be fully explored. If nonconstruction alternatives would not achieve satisfactory results, then a development solution should consider whether the project <ul style="list-style-type: none"> » is appropriate and necessary to meet management needs » is designed with extreme care and sensitivity to the landscape through which it passes » would not cause adverse impacts to natural and cultural resources, and would minimize or mitigate those impacts that cannot be avoided » reduces traffic congestion, noise, air pollution, and adverse effects on Reserve resources and values » would not violate federal, state, or local air pollution control plans or regulations » would not cause use in the areas to exceed the areas' user capacity » incorporates the principles of energy conservation and sustainability » is able to demonstrate financial and operational sustainability » incorporates universal design principles to provide for accessibility for all people, including those with disabilities » takes maximum advantage of interpretive opportunities and scenic values » is based on a comprehensive and multidisciplinary approach that is fully consistent with the Reserve's general management plan and asset management plan » enhances visitor experience by offering new or improved interpretive or visitor opportunities, by simplifying travel within the Reserve, or by making it easier or safer to see features within the Reserve

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Management and Operations	Utilities and Communication Facilities
	<p>Law and Policy Source</p> <p>The Telecommunications Act of 1996 directs all federal agencies to assist in the national goal of achieving a seamless telecommunications system throughout the United States by accommodating requests by telecommunication companies for the use of property, rights-of-way, and easements to the extent allowable under each agency's mission. The National Park Service is legally obligated to permit telecommunication infrastructure in park units if such facilities can be structured to avoid interference with park unit purposes.</p> <p>Rights-of-way for utilities to pass over, under, or through NPS property may be issued only pursuant to specific statutory authority, and generally only if there is no practicable alternative to such use of NPS lands. Statutory authorities in 16 USC 5 and in NPS <i>Management Policies 2006</i> (§8.6.4) provide guidance on these rights-of-way. City of Rocks National Reserve has powerline rights-of-way located along the county road through most of the Reserve.</p> <p>Desired Conditions</p> <p>Reserve resources or public enjoyment of the Reserve are not denigrated by nonconforming uses. Telecommunication structures are permitted in the Reserve to the extent they do not jeopardize the Reserve's mission and resources.</p> <p>No new nonconforming use or rights-of-way are permitted through the Reserve without specific statutory authority and approval by the director of the National Park Service or his/her representative, and are permitted only if there is no practicable alternative to such use of NPS lands.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Work with service companies, local communities, and the public to locate new utility lines and maintain existing lines so that there is minimal effect on Reserve resources. • Place new or reconstructed utilities and communications infrastructure with existing structures and along roadways or other established corridors in developed areas, if infrastructure is necessary and there are no other options. • For reconstruction or extension into undisturbed areas, select routes that minimize impacts on the Reserve's natural, cultural, and visual resources. • Place utility lines underground to the maximum extent possible, away from sensitive resources. • Follow NPS policies in processing applications for commercial telecommunications facilities.

TABLE 2. DESIRED CONDITIONS AND POTENTIAL MANAGEMENT STRATEGIES DERIVED FROM LAWS, REGULATIONS, AND POLICIES

Management and Operations	Relations with Private and Public Organizations, Owners of Adjacent Land, and Governmental Agencies
	<p>Law and Policy Source</p> <p>NPS <i>Management Policies 2006</i> (§1.6) stresses the need for cooperative conservation beyond park boundaries. This cooperation is necessary in order for the National Park Service to fulfill its mandate to preserve the natural and cultural resources unimpaired for future generations. Local and regional cooperation may involve other federal agencies, tribal, state, and local governments, neighboring landowners, and nongovernmental and private sector organizations.</p> <p>Desired Conditions</p> <p>City of Rocks National Reserve is managed as part of a greater ecological, social, economic, and cultural system.</p> <p>Good relations are maintained with adjacent landowners, such as the U.S. Forest Service, Bureau of Land Management, surrounding communities, and private and public groups that affect, and are affected by the Reserve.</p> <p>The Reserve is managed proactively to resolve external issues and concerns and ensure that the resources and values of the Reserve are not compromised.</p> <p>Because the Reserve is an integral part of a larger regional environment, the Reserve staff works cooperatively with others to anticipate, avoid, and resolve potential conflicts, protect Reserve resources, and address mutual interests in the quality of life for community residents. Regional cooperation involves federal, state, and local agencies, American Indian tribes, neighboring landowners, and all other concerned parties.</p> <p>Potential Management Strategies</p> <ul style="list-style-type: none"> • Continue to establish and foster partnerships with public and private organizations to achieve the purposes and missions of the Reserve. Partnerships would continue to be sought for resource protection, research, education, and visitor enjoyment purposes. • To foster a spirit of cooperation with neighbors and encourage compatible adjacent land uses, continue to keep landowners, land managers, local governments, and the public informed about management activities. Periodic consultations would continue with landowners who might be affected by visitors and management actions. • Continue to respond promptly to conflicts that arise over Reserve activities, visitor access, and proposed activities and developments on adjacent lands that could affect the Reserve. • Provide technical and management assistance to landowners to address issues of mutual interest. Reserve staff would continue to work closely with adjacent landowners, local, state, and federal agencies, and tribal governments whose programs affect, or are affected by activities in the Reserve. • Reserve managers would continue to pursue cooperative regional planning whenever possible to integrate the unit into issues of regional concern.

Chapter 3

Alternatives, Including the Preferred Alternative





Chapter 3: Alternatives

In spring 2011, the general management planning team, composed of staff from the Idaho Department of Parks and Recreation and the National Park Service, developed management alternatives for City of Rocks National Reserve, incorporating public responses from newsletters and public meetings. The National Environmental Policy Act and NPS planning regulations require the formulation of a reasonable range of alternatives that address identified planning issues and management concerns described in the “Purpose of the General Management Plan” and “Need for the General Management Plan” sections in chapter 1.

FORMULATION OF ALTERNATIVES

The development of alternatives for the future of City of Rocks National Reserve is based on the purpose of the Reserve, including protection of the scenic qualities and attributes of the California Trail landscape, maintaining the historic rural setting, and preserving the granite features associated with the national natural landmark through cooperative efforts. These cooperative efforts rely on local citizens, Cassia County, the Idaho Department of Parks and Recreation, and the National Park Service. The alternatives define and present proposed strategies for the protection, preservation, and management of shared values at City of Rocks National Reserve.

All the alternatives presented in this draft GMP/EIS meet both the spirit and the intent of the law establishing the Reserve. The alternatives each provide for the long-term protection of the Reserve’s resources and the public enjoyment of those resources in a way that is cognizant and respectful of private property.

The alternatives are based on information about the Reserve’s resources and visitor use, as well as from IDPR and NPS sources, including the public, federal and state agencies, and stakeholder groups. Each of the alternatives supports and is consistent with the Reserve’s purpose and significance, desired future conditions, and current laws, regulations, and policies. The alternatives avoid unacceptable resource impacts and respond to issues or concerns raised by the public during the scoping and preliminary alternatives phases of the project.

The alternatives vary in how management zones are applied geographically, according to the overall concept of the alternative. The alternatives also vary in the management prescriptions, or actions, that the Reserve would take to achieve the desired conditions for various key resources.

Four alternatives are described in this draft GMP/EIS:

Alternative A: the No Action Alternative (Continue Current Management) assumes that current management, programming, facilities, staffing, and funding would generally continue at their current levels and that existing plans would be implemented.

Alternative B: Silent City of Rocks is the IDPR and NPS preferred alternative. This alternative would focus on the spectacular scenic quality, geology, biological richness, and cultural landscape experienced by past and present visitors to emphasize a backcountry-type visitor experience that would allow for self-discovery within a minimally developed western outdoor environment.

Alternative C: A Stage for Stewardship would protect resources through research activities, educational opportunities, and partnerships by emphasizing the national significance of the Reserve.

Alternative D: Treasured Landscapes Inspiring Stories would tell the stories of the Reserve through the people who pass through, live, and recreate here by focusing on the California Trail and the ranching heritage and by emphasizing a front country and day-use experience with more formal and structured recreational opportunities and programs.

These alternatives would provide guidance to Reserve managers about which resource conditions and visitor uses and experiences should be achieved rather than the details of how these conditions and experiences should be achieved.

IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The preferred alternative is the alternative that the National Park Service and Idaho Department of Parks and Recreation have determined at this time would best fulfill their mission and responsibilities. The preferred alternative was identified following an initial assessment of the impacts of the alternatives, consultation with the Bureau of Land Management, and the public's ideas and preferences.

Identification of the environmentally preferable alternative, as required by Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making and the accompanying DO-12 Handbook and for consistency with section 101 of the National Environmental Policy Act as required by the Council on Environmental Quality, is discussed at the end of this chapter.

CONSIDERATION OF BOUNDARY ADJUSTMENTS

Congress directed the National Park Service to consider "indications of potential boundary modifications" in the development of general management plans for national park units. Park boundaries are often drawn to reflect a wide range of practical considerations at one point in time; therefore, they do not necessarily reflect natural or cultural resource features, administrative considerations, or changing land uses.

The 1996 *City of Rocks National Reserve Comprehensive Management Plan, Development Concept Plan and Environmental Impact Statement* identified important resources

adjacent to the Reserve. The planning team has explored different boundary options that would facilitate resource protection, enhance visitor experience, and simplify management of these resources. Although the preferred alternative does not contain a boundary adjustment, two of the action alternatives in this draft GMP (alternatives C and D) propose boundary modifications with these issues in mind. Alternative C also includes an option for cooperative management with adjacent land management agencies (U.S. Forest Service and Bureau of Land Management) and private landowners.

The criteria for potential boundary adjustments state that boundary adjustments may be recommended for the following purposes, namely to:

- Protect significant resources and values, or enhance opportunities for public enjoyment related to park purposes.
- Address operational and management issues, such as the need for access or the need for boundaries to correspond to logical boundary delineations such as topographic or other natural features or roads.
- Otherwise protect park resources that are critical to fulfilling park purposes (NPS 2006a, sec. 3.5).

Potential boundary adjustments must also be feasible to administer, considering size, configuration, ownership, costs, and other factors. The analysis of boundary adjustments based on these criteria can be found in Appendix E.

The boundary of a national park system unit may be modified only as authorized by law; therefore, although boundary adjustments are recommended in some of the alternatives, the boundary adjustment would need to be approved by Congress before implementation. Where a boundary adjustment is part of the alternative selected for implementation, the National Park Service will recommend it to the Secretary of the Interior for legislative or

administrative action. Existing NPS lands and any land interests acquired by the National Park Service in the Reserve would remain in federal (NPS) ownership and jurisdiction.

USER CAPACITY

General management plans for national park system units are required by law to identify and address implementation commitments for user capacity, also known as carrying capacity. The National Park Service defines user capacity as the types and levels of visitor use that can be accommodated while sustaining the quality of park resources and visitor experiences consistent with the purposes of the park unit. Managing user capacity in national park units is complex and depends not only on the number of visitors, but also on where the visitors go, what they do, and the “footprints” they leave behind. An expanded discussion on user capacity is located at the end of this chapter.

RANGE OF ALTERNATIVES CONSIDERED

MANAGEMENT ZONES USED IN THE ALTERNATIVES

Management zones define specific resource conditions and visitor experiences to be achieved and maintained in each particular area of City of Rocks National Reserve. Each zone includes the types of activities and facilities that are appropriate in that management zone.

Unlike most national park units that are entirely owned and managed by the National Park Service, approximately a third of the land within the Reserve is in private ownership where local county zoning and regulations prevail. On private land, there would be no public visitation (unless it occurred with the landowners’ permission) or activities or facilities. Private owners would continue to be stewards on their own lands with NPS and IDPR assistance. Congress expected the Reserve to be zoned according to use and resource preservation—the

enabling legislation for the Reserve called for zoning areas within the Reserve that would be devoted to public use and development; historic and natural preservation; and private use subject to appropriate local ordinances designed to protect the historic rural setting.

For the Reserve, six management zones were developed by the planning team. These include the following:

- Visitor Facilities and Access Zone
- Transition Zone
- Natural Zone
- Research Natural Area Zone
- Historic Rural Setting Zone
- California Trail Zone

These zones form the basis of the general management plan’s alternatives and are applied to different geographic locations or areas of the Reserve in alternatives B, C, and D. In alternative A, the zones were taken from the Reserve’s 1996 comprehensive management plan. Each zone gives a general level of management guidance or direction.

For alternatives B, C, and D, management zone boundaries were assigned according to the overall concept of each alternative. For example, for an alternative whose overall concept emphasizes research and stewardship, a larger Research Natural Area Zone might make sense. For an alternative that emphasizes the historical significance of the Reserve, larger California Trail and Historic Rural Setting Zones would be appropriate.

The management zones for City of Rocks National Reserve are presented in “Table 3. Management Zones.” For each zone, the table depicts the zone concept; the natural and cultural resource conditions; special uses such as grazing, hunting and trapping, and communication facilities; visitor experience; and facilities and operations.

In addition to the management zones, park managers would continue to use the Superintendent’s Compendium (36 CFR 2.4). The compendium is a list of designations, closures, requirements, and other restrictions

imposed under the discretionary authority of the superintendent as provided in Title 36 of the Code of Federal Regulations.

ACTIONS COMMON TO ALL ALTERNATIVES

The following actions would be common to all of the GMP alternatives for City of Rocks National Reserve, including alternative A, the No Action Alternative:

Reserve Management and Operations

- City of Rocks National Reserve is a unit of the national park system managed by the Idaho Department of Parks and Recreation under Cooperative Agreement 1443-CA9000-96-0002.
- Private uses on private lands would continue to be under the jurisdiction of Cassia County.
- Reserve operations (administration and maintenance) would continue to be located at the Castle Rocks State Park Administrative Unit in Almo. This would include employee offices, the library, maintenance shop, and other administrative functions.
- The Reserve would continue to offer camping through a national campsite reservation system (currently Reserve America).
- The Reserve would continue to work with adjacent landowners and citizens on issues of mutual concern.
- The Reserve would seek out partnering opportunities with surrounding land management agencies to pursue goals of mutual interest.

Natural Resources

- To better protect air quality, the Reserve would encourage the State of Idaho to designate the City of Rocks National Reserve as a Class I area instead of Class II. Redesignation would improve protection of air quality from major new sources of air pollution.
- The Reserve would continue to work with the Idaho Department of Environmental Quality, Idaho Department of Fish and Game, the NPS Upper Columbia Basin Network Inventory and Monitoring Program (UCBN I&M), and the U.S. Fish and Wildlife Service (USFWS) to monitor water quality.

Cultural Resources

- Museum collections would continue to be curated and stored at Hagerman Fossil Beds National Monument in the paleontological laboratory and collections facility.
- Reserve staff would remove the existing historic water impoundment #1 at Circle Creek and restore the riparian area to natural conditions as seen by California Trail emigrants. This action is consistent with the national historic landmark designation and its focus on the California Trail era.

Special Uses and Designations

- The Reserve would recommend that Cassia County extend its Historical Preservation Zone to encompass the entire Reserve to more fully protect its cultural and natural resources. The Historical Preservation Zone limits existing landowners to one residence and land use consistent with that of 1988 and earlier. A portion of the southeast section of the Reserve was left out of the original zoning and it is this section that the Reserve would propose including.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
	The Visitor Facilities and Access Zone encompasses a variety of facilities that support the highest visitor capacity within the Reserve and serves as an access point for experiencing the Reserve.	The Transition Zone balances recreation with the protection of resources. It provides a more geographically dispersed recreational experience, offering scenic vistas and a sense of open, natural character while providing minimal developed comforts.	The Natural Zone preserves natural features, natural processes, diversity, and ecological values and provides for compatible recreational uses.	The Research Natural Area Zone preserves outstanding natural features, natural processes, diversity, and ecological values, and provides for nonmanipulative research. Activities will be restricted to nonmanipulative research, education, and other activities that will not detract from the area's research values, according to NPS policies.	The Historic Rural Setting Zone preserves the western rural setting and perpetuates the visual character of historic ranching activities on the landscape.	The California Trail Zone preserves and interprets the major landmarks, trail remnants, inscription rocks, and historically significant viewsheds associated with the California National Historic Trail.
Overall Conditions	Character-defining features of the national historic landmark and California National Historic Trail (if trail resources occur in this zone) are preserved. When new developments occur to accommodate visitor use, administration, and safety, they are undertaken in a manner compatible with the historically significant values of the Reserve.	Character-defining features of the national historic landmark are preserved. Preservation and interpretation of cultural resources are integrated into the development of all recreational facilities and visitor experience goals. In the rare occurrence that modifications to cultural resources occur to accommodate visitor use and safety, they are undertaken in a manner compatible with the historically significant values of the Reserve.	Actions for protection or restoration of natural resources are undertaken in a manner compatible with the historically significant values of the Reserve. Documentation and noninvasive data recovery of archeological resources are undertaken if loss of cultural resources due to natural processes is imminent.	Actions for protection of natural resources are undertaken in a manner compatible with the historically significant values of the Reserve. Documentation and noninvasive data recovery of archeological resources are undertaken if loss of cultural resources due to natural processes is imminent.	The western rural setting and visual character of historic ranching activities are preserved and perpetuated. When new developments occur to accommodate ranching activities, visitor use, and safety, they are undertaken in a manner compatible with the visual characteristics of the historic rural setting.	Cultural resources and values associated with the California National Historic Trail receive priority over other resource and management objectives. Wagon trail remnants, inscription rocks, culturally significant natural features, archeological sites, and historically significant viewsheds are preserved and interpreted.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Buildings and Structures <i>Buildings and structures on the Reserve post-date the period of significance for the national historic landmark (1843–82). These structures are associated with mining and homesteading activities and provide opportunities for interpretation of the broader history of use in the Reserve (Nicholson Ranch, Moon Homestead, mining sites).</i>	<p>If structures exist in this zone, they are stabilized near visitor facilities and operations to ensure visitor safety. Select structures are interpreted for their association with earlier land uses in the Reserve, such as mining, ranching, and homesteading.</p>	<p>If structures exist in this zone, they are stabilized near visitor facilities and operations to ensure visitor safety. Select structures are interpreted for their association with earlier land uses in the Reserve, such as mining, ranching, and homesteading.</p>	<p>Structures that exist in this zone are documented and stabilized or left to natural processes. Any preservation actions are determined on a case-by-case basis, depending on the condition, function, and associated interpretive values of the structure.</p>	<p>Structures that exist in this zone are documented and left to natural processes.</p>	<p>Existing buildings and structures would receive historic preservation treatment in support of interpretive objectives for the historic rural setting.</p>	<p>Existing buildings and structures that post-date the period of the California Trail could be stabilized and interpreted for their association with later periods of land use in the Reserve.</p>

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Cultural Landscapes <i>California National Historic Trail, lands within the national historic landmark boundary, and contributing resources associated with the national historic landmark including viewsheds, wagon ruts, inscription rocks, and culturally significant natural features.</i> <i>(There are also cultural landscape features associated with later periods, such as fence lines, corrals, trails, mining landscapes, and water works.)</i>	<p>Visitor facilities, including interpretive structures and infrastructure required for Reserve management and operations, are sited and designed so that they do not adversely impact significant resources of the California Trail corridor, such as historic viewsheds, trail ruts, inscription rocks, and natural features with cultural values.</p> <p>New facilities and land uses are located in a manner that supports preservation of the rural character of the Reserve to the degree possible.</p>	<p>Cultural landscape resources of the California Trail are preserved when planning or implementing new developments related to recreational activities. The rural character of the Reserve—including existing fence lines, county roads, and open character of the Reserve landscape—are maintained to the degree possible.</p> <p>All new facilities and uses are designed to be compatible with the rural character of the Reserve.</p>	<p>Cultural landscape resources, including culturally important vegetation (e.g., pinyon pine) are managed to maintain historically significant character and cultural values adjacent to the California Trail corridor.</p> <p>Cultural landscape resources related to the historic rural setting of the Reserve are managed on a case-by-case basis.</p> <p>In most cases, built features such as fences would be stabilized or repaired. In other cases, where the condition, function, or resource value of the structure is not significant, the feature would be documented and removed or managed to allow natural processes to prevail.</p>	<p>Cultural landscape resources in this zone are limited. Those that do occur are protected and managed according to NPS policy.</p>	<p>Cultural landscape resources associated with the California Trail corridor are preserved and stabilized.</p> <p>Cultural landscape features associated with grazing, such as fence lines, troughs, enclosures, informal roads and trails, etc., are stabilized and managed to the degree they support and enhance the historic rural setting of the Reserve.</p> <p>Cultural landscape features associated with the historic rural character of the Reserve such as fence lines would be considered for removal on a case-by-case basis as the need for fencing changes (fences are not part of the historic period).</p>	<p>Cultural landscape resources associated with the California National Historic Trail and trail corridor are stabilized and preserved.</p> <p>The addition of new structures within the national historic landmark, including small scale features such as interpretive signs, is considered within the context of the specific context of the specific and cumulative impacts to the visual character and physical integrity of the trail corridor.</p> <p>Cultural landscape features associated with the historic rural character of the Reserve such as fence lines would be considered for removal on a case-by-case basis as the need for fencing changes (fences are not part of the historic period).</p>

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Archeological Resources	Visitor facilities and operations are sited and designed so that they do not adversely impact archeological sites. Particular consideration is given to cumulative impacts. Archeological sites are preserved for their research values. Operational activities do not impede preservation strategies for archeological resources.	Actions for development of visitor services and the protection or restoration of natural resources are undertaken in a manner compatible with the preservation of archeological sites. Particular consideration is given to cumulative impacts.	Actions for protection or restoration of natural resources are undertaken in a manner compatible with the preservation of archeological sites.	Documentation and noninvasive data recovery of archeological resources are undertaken if loss of cultural resources due to natural processes is imminent. Research into the effect of natural processes on archeological sites may occur.	Documentation and data recovery of archeological resources are undertaken, if appropriate, for furthering the understanding of the history of the Reserve. Replacement-in-kind of elements that require maintenance such as fences is allowed. All archeological sites are preserved.	Documentation and data recovery of archeological resources are undertaken, if appropriate, for furthering the understanding of the history of the Reserve. The preservation of extant cultural resources related to the California National Historic Trail take precedence. (Trail ruts will not be excavated to explore a prehistoric site). All archeological sites are preserved.
Overall Conditions	Natural resources are protected but may be modified in less sensitive locations for visitor use, park operations, or administrative use.	Natural resources are protected and retain their integrity but may be modified in less sensitive locations for visitor use and resource protection.	Natural resources are protected and retained in as pristine a condition as possible. This zone supports resource protection.	Natural resources are protected and retained in as pristine a condition as possible. This zone supports nonmanipulative research and resource protection.	Natural resources are protected but may be modified in appropriate locations to support important cultural resources and their interpretation.	Natural resources are protected but may be modified in appropriate locations to support important cultural resources and their interpretation.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Vegetation and Wildlife	Native vegetation communities and wildlife habitat are mostly intact, but may be modified by development and high visitor use in suitable areas. In developed settings native vegetation landscaping will be used. Efforts to suppress nonnative invasive species are focused on species that have the most severe adverse impacts on native communities. Special status species and associated habitats may be actively managed to perpetuate these species.	Native vegetation communities and wildlife habitat are mostly intact, but may be modified. Nonnative invasive species are managed with emphasis on species that have the most severe adverse impacts on native communities. Special status species and associated habitats may be actively managed to perpetuate these species.	Native vegetation communities and wildlife habitat are mostly intact, but may be minimally modified. Nonnative invasive species are managed with emphasis on species that have the most severe adverse impacts on native communities. Special status species and associated habitats may be actively managed to perpetuate these species.	Native vegetation communities and wildlife communities are intact. This area is managed to allow for natural processes. Special status species and associated habitats may be actively managed to perpetuate these species.	Native vegetation communities and wildlife habitat are mostly intact, but may be minimally modified to protect cultural resources. Nonnative invasive species are managed with emphasis on species that have the most severe impacts on native communities. Vegetation may be modified to enhance the historical setting. Special status species and associated habitats may be actively managed to perpetuate these species.	Native vegetation communities and wildlife habitat are mostly intact, but may be minimally modified to protect cultural resources. Nonnative invasive species are managed with emphasis on species that have the most severe impacts on native communities. Vegetation may be modified to enhance the historic character and environmental setting of the trail corridor. Special status species and associated habitats may be actively managed to perpetuate these species.
Geological Resources and Soils	Geologic features and soils are protected and geologic processes continue. Impacted areas, including areas adversely affected by incompatible development or visitor use, are restored to the greatest extent possible. Infrastructure is designed or relocated to avoid geologic features, hazards, and erosion (both causal and effectual).	Geologic features and soils are protected and geologic processes continue. Impacted areas are restored to the greatest extent possible. Infrastructure is designed or relocated to avoid geologic features, hazards, and erosion (both causal and effectual).	Geologic features and soils are protected and geologic processes continue. Impacted areas are restored to the greatest extent possible. Infrastructure is designed or relocated to avoid geologic features, hazards, and erosion (both causal and effectual).	Geologic features and soil are protected and geologic processes continue.	Geologic features and soil are protected and geologic processes continue. Some alteration or intervention in geologic processes on public lands may occur to protect cultural resources. Impacted areas on public lands are restored to the greatest extent possible consistent with cultural resource protection.	Geologic features and soil are protected and geologic processes continue. Some alteration or intervention in geologic processes may occur to protect cultural resources (such as removing or stabilizing a fragile or hazardous geologic feature). Impacted areas are restored to the greatest extent possible consistent with cultural resource protection and visitor safety.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Hydrologic Systems	Natural hydrologic systems and processes are left unimpeded except where stabilization and management are needed to protect significant resources. Where possible, infrastructure is designed or relocated to minimize impacts on hydrologic systems and restore natural functions.	Natural hydrologic systems and processes are left unimpeded except where stabilization and management are needed to protect significant resources. Where possible, infrastructure is designed or relocated to minimize impacts on hydrologic systems and restore natural functions.	Natural hydrologic systems and processes are primarily left unimpeded except where stabilization and management are needed to protect significant resources. Where possible, infrastructure is designed or relocated to minimize impacts on hydrologic systems and restore natural functions.	Natural hydrologic systems and processes are left unimpeded, unless mitigation action is required under NPS policies or to meet purposes of the Research Natural Area.	Natural hydrologic systems and processes are left unimpeded except where stabilization and management are needed on public lands to protect cultural and natural resources. Where possible on public lands, infrastructure is designed or relocated to minimize impacts on hydrologic systems and restore natural hydrologic functions.	Natural hydrologic systems and processes are left unimpeded except where stabilization and management are needed on public lands to protect cultural and natural resources. Where possible, infrastructure is designed or relocated to minimize impacts on natural hydrology.
Soundscape	An intact acoustical environment is experienced at certain locations. New facilities are sited and designed to minimize impacts on the acoustical environment. Natural sounds are generally audible but sounds from visitor and park activities may be disturbed by noise.	The acoustical environment is largely intact. Natural sounds dominate; however, sounds from visitor use and park operations may be heard. Wildlife may be disturbed by noise.	The acoustical environment is largely intact. Natural sounds dominate; however, distant artificial sounds may intrude occasionally. Wildlife habitats are free or nearly free of intrusive noise.	The acoustical environment is intact. Natural sounds dominate, and distant artificial sounds are rarely heard. Wildlife habitats are free of noise.	Natural sounds dominate; however, some noise may intrude from visitor and park operations. Historically appropriate sounds from the period of significance may modify the otherwise intact acoustical environment.	Natural sounds dominate; however, some noise may intrude from visitor and park operations. Historically appropriate sounds (such as cattle lowing) from the period of significance may modify the otherwise intact acoustical environment.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Night Sky	An intact night sky can be experienced at certain locations. No artificial lighting is present, although lighting from developed areas may be visible from some locations. New public facilities within the Reserve are sited and designed without lighting. Facilities outside the Reserve boundary are sited and designed using best management practices for outdoor lighting.	The night sky is largely intact. No artificial lighting is present although lighting from developed areas may be visible from some locations.	The night sky is largely intact. No artificial outdoor lighting is present although lighting from developed areas may be visible from some locations.	The night sky is intact. No artificial outdoor lighting is present although distant lighting outside the Reserve may be visible from some locations.	No artificial outdoor lighting is present though distant lighting outside the Reserve may be visible from some locations.	No artificial outdoor lighting is present though distant lighting may be visible from some locations.
Air Quality	Reserve operations minimize air pollution emissions.	Reserve operations minimize air pollution emissions.	No air pollution emissions are evident from Reserve operations. The Reserve maximizes its carbon sequestration (the uptake and storage of atmospheric carbon in soils, forests, and other vegetation) potential as appropriate.	No air pollution emissions are evident from Reserve operations. The Reserve maximizes its carbon sequestration potential as appropriate.	Reserve operations minimize air pollution emissions and maintain carbon sequestration potential.	Reserve operations minimize air pollution emissions and maintain carbon sequestration potential.
Hunting and Trapping	Hunting and trapping are prohibited in this zone due to safety considerations associated with high visitor use.	Hunting and trapping are allowed in this zone subject to state regulations, but may be limited, due to visitor safety. Landowner permission is required to hunt or trap on private land in the Reserve.	Hunting and trapping are allowed in this zone subject to state regulations. Landowner permission is required to hunt or trap on private land in the Reserve.	Hunting and trapping are prohibited in the Research Natural Area consistent with NPS policy for research natural areas.	Hunting and trapping are allowed in this zone subject to state regulations. Landowner permission is required to hunt or trap on private land in the Reserve.	Hunting and trapping are allowed in this zone subject to state regulations except near structures and roads. Landowner permission is required to hunt or trap on private land in the Reserve.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Grazing	Trailing of cattle and pasturing in allotments (such as at Bread Loaves and Finger Rock) is allowed in this zone, though not in riparian and wetland areas.	Grazing in designated allotments and trailing of cattle are allowed in this zone, though not in riparian and wetland areas.	Although grazing in designated allotments and trailing of cattle are allowed in this zone, steps would be taken to ensure that it does not occur in riparian and wetland areas.	Grazing is prohibited in the Research Natural Area consistent with NPS policy for research natural areas.	Grazing in designated allotments is allowed in this zone, though not in riparian and wetland areas.	Grazing in designated allotments is allowed in this zone, though not in riparian and wetland areas. Allotments may be reduced or eliminated over time where feasible and consistent with cultural resources protection.
Communication Facilities	Cell towers and other communication facilities are not allowed in this zone.	Cell towers and other communication facilities are not allowed in this zone.	Cell towers and other communication facilities, except for a park repeater station, are not allowed in this zone.	Cell towers and other communication facilities are prohibited in the Research Natural Area consistent with NPS policy for these areas.	Cell towers and other communication facilities are not allowed in this zone.	Cell towers and other communication facilities are not allowed in this zone.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Overall Conditions	This zone is managed for visitor access and a wide range of self-directed and guided visitor activities, including education and interpretation, recreation, and orientation. Appropriate uses include camping, trail use, climbing, photography, and wildlife viewing.	This zone provides visitors with opportunities for unstructured and self-guided experiences, as well as guided walks and hikes. Appropriate activities include trail use, climbing, dispersed camping, photography, and wildlife viewing.	Visitors in this zone experience solitude, natural sounds, a sense of remoteness, self-reliance, and discovery. Visitor activities are generally unstructured and self-guided and include trail use, backcountry camping by permit, and climbing with an emphasis on traditional climbing, photography, and wildlife viewing.	In this zone, protection of resources is paramount. Although visitor access is limited, it is allowed if not disruptive to research or protection activities.	Visitors in this zone have the opportunity to observe traditional ranching activities as well as remnant structures associated with ranching heritage. Visitor activities include unstructured experiences such as trail use, interpretation, and educational opportunities to view ranching operations on both public and private lands. Access to private land, however, requires landowner permission.	This zone provides the opportunity for visitors to imagine the emigrant experience on the California Trail. Visitors have the opportunity to observe inscription rocks, landmarks, and viewsheds that evoke the feelings and experiences of emigrants traveling the California Trail. Trail ruts and other trail remnants provide an opportunity for education and interpretation of the California Trail. Interpretation, education, and recreation that complement the historic setting would occur here.
Climbing	Climbers must propose new fixed anchor routes through a permit process. No permit is needed for traditional climbing.	Climbers must propose new fixed anchor routes through a permit process. No permit is needed for traditional climbing.	Climbers must propose new fixed anchor routes through a permit process. No permit is needed for traditional climbing. Modifications to existing routes could be made to protect resources.	Access to all existing routes (fixed anchor and traditional) is allowed. No new fixed anchor proposals will be accepted. Traditional climbing is allowed as long as it does not interfere with ongoing research activity.	Climbers must propose new fixed anchor routes through a permit process. No permit is needed for traditional climbing.	There are no fixed anchors in the California Trail Zone. No climbing of technical routes is allowed in the California Trail Zone. Signature Rocks or rocks with inscriptions (e.g., Camp Rock, Register Rock) are closed to all climbing, including bouldering and scrambling. Scrambling is allowed on rocks without signatures in the California Trail Zone.

TABLE 3. MANAGEMENT ZONES

	VISITOR FACILITIES AND ACCESS ZONE	TRANSITION ZONE	NATURAL ZONE	RESEARCH NATURAL AREA ZONE	HISTORIC RURAL SETTING ZONE	CALIFORNIA TRAIL ZONE
Overall Conditions	The existing public and administrative road corridors in this zone provide access to concentrated recreational facilities including campsites, parking, restrooms, trailheads and trails, developed staging areas, fixed anchor hardware, picnic areas, corrals, kiosks, signs, and interpretive waysides. This zone also includes facilities that support park operations such as utilities (wells, underground power lines, etc.).	Development is modest in this zone. There is no motorized access in this zone, except for administrative use and private landowner access. This zone allows for dispersed recreational facilities, including walk-in campsites, trails and trail infrastructure, trail signage, waysides, fencing and corrals, developed staging areas for climbing, and fixed anchor hardware. This zone includes primitive administrative road/ access for administrative and emergency response.	This zone is limited to minimal facilities consistent with natural resource protection. Facilities include trails and trail infrastructure, fencing, water troughs, and waysides. Existing public, private and administrative roads are allowed in this zone and some primitive roads would be removed where possible.	No development is allowed in this zone. The boundary of this zone is fenced where necessary to exclude cattle. No new trails will be allowed.	Development is minimal in this zone. Existing public, private, and administrative roads are allowed in this zone. Fencing, corrals, water troughs, trails and their associated elements, trail signage, and waysides are allowed in this zone.	This zone has limited development to protect California Trail resources and to provide for visitor access, education, and interpretation. Existing public and administrative roads are allowed. Some primitive roads would be removed, where possible, if private lands were acquired. Utilities would continue to be placed underground. This zone allows for small-scale parking areas, waysides, road signs, and interpretive and informational signage. Foot and equestrian trails may be appropriate. Administrative fencing is allowed and historic fences will be removed when obsolete. No further development is allowed.

- Section 36 of the Reserve was designated a state park in 1957 (called City of Rocks State Park) and is technically a state park within the National Reserve. In all alternatives, Section 36 would continue to be a state-owned parcel within the Reserve (see “Figure 2. Land Ownership and Management”).
- The Reserve would continue to allow noncommercial pinyon nut gathering (as outlined in the Superintendent’s Compendium and 36 CFR Section 2.1) and hunting (as regulated by Idaho Department of Fish and Game).
- Hunting and trapping within the Reserve are allowed by legislation under the jurisdiction of the Idaho Department of Fish and Game. It is permitted within certain public areas of the Reserve and within private lands in the Reserve with prior permission of the landowner. To better educate hunters and trappers about areas available within the Reserve and to establish sustainable levels of hunting, the Reserve would work with the department.
- The Reserve would update the national natural landmark designation to encompass other significant features in the Reserve.
- The Reserve would update the national historic landmark designation to encompass other significant features in the Reserve.
- The Reserve would encourage Cassia County to support national scenic byway designation for the existing City of Rocks Back Country Byway. If nationally designated, federal funding for byway projects could be sought.

Visitor Use

- The Reserve would continue to provide opportunities for traditional recreational activities such as hiking, biking, horseback riding, birding, climbing, and pinyon nut gathering.

- The Reserve would continue to offer youth programs such as the Youth Conservation Corps (YCC) program and day camps, student internships, Junior Ranger programs, and other special events.
- The ban on technical climbing at Twin Sisters would continue.

ALTERNATIVE A: NO ACTION ALTERNATIVE (CONTINUE CURRENT MANAGEMENT)

General Description

Under alternative A, existing programming, facilities, staffing, and funding would generally continue at current levels to protect the values of the Reserve. There would be no major changes in current management or visitor use. Implementation of currently approved plans would continue as funding allows. This alternative provides the baseline for evaluating actions and impacts in other alternatives.

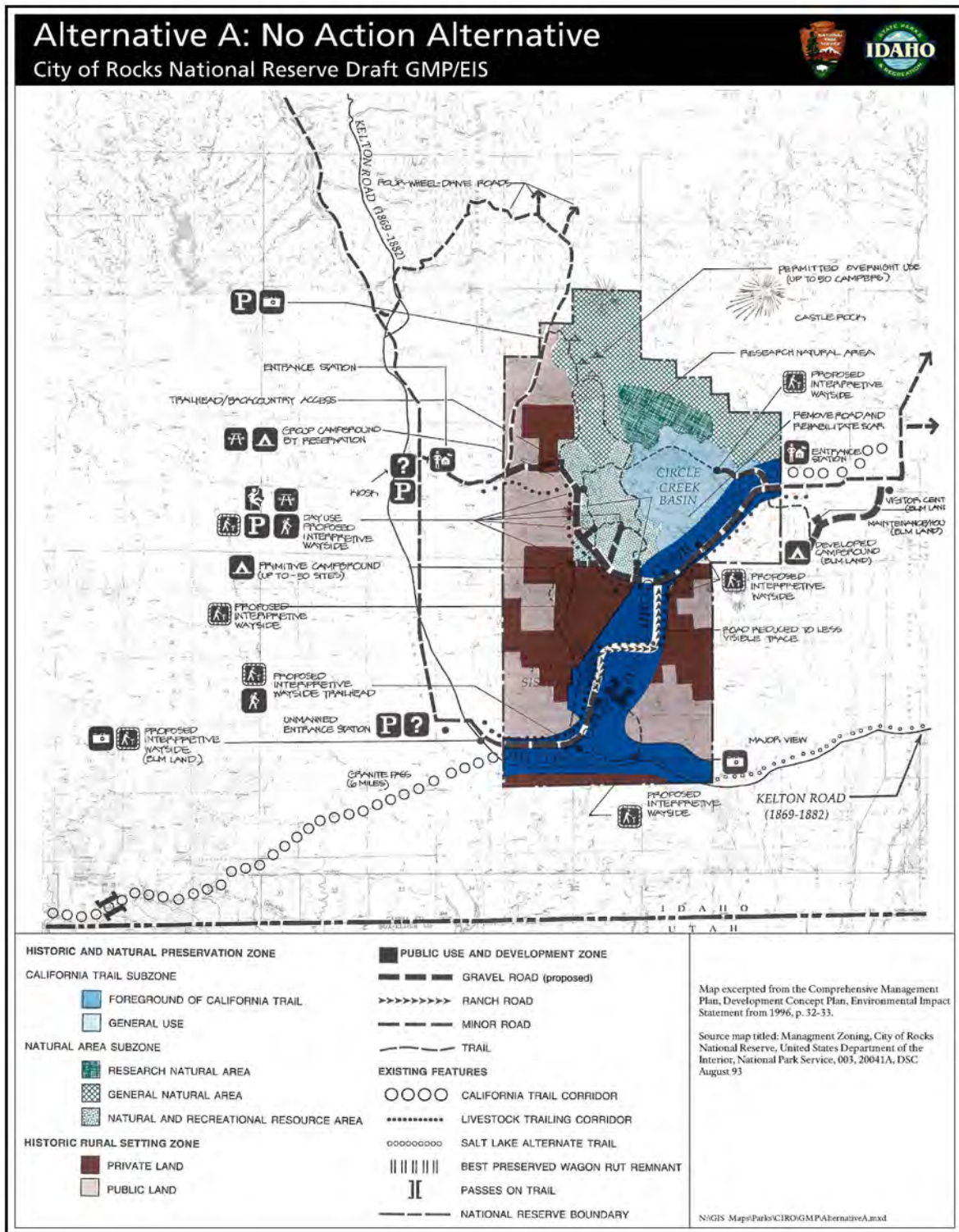
Management Zones Applied to the No Action Alternative

Because alternative A is a continuation of current management, this alternative would continue to rely on the management zones from the Reserve’s 1996 comprehensive management plan and would not use the new management zoning shown in table 3. The 1996 comprehensive management plan contains three main zones and two subzones. The main zones include:

- Historic and Natural Preservation Zone with two subzones (California Trail Subzone and Natural Area Subzone)
- Historic Rural Setting Zone
- Public Use and Development Zone

For alternative A, the specific configuration of the management zones is provided in “Figure 5. Alternative A: No Action Alternative.”

FIGURE 5. ALTERNATIVE A: NO ACTION ALTERNATIVE



Historic and Natural Preservation Zone

This zone would contain lands where the preservation and public appreciation of cultural and natural resource values would be the predominant concern. This zone would include subzones for the California Trail and major rock outcrops—the two exceptional resource values for the Reserve.

California Trail Subzone

The management intent of this zone is to preserve the major landmarks, trail remnants, and inscription rocks associated with the California Trail (including the Salt Lake Alternate) and to give visitors the opportunity to walk alongside the entire length of the California Trail and within the Circle Creek encampment area.

Natural Area Subzone

The management intent of this zone is to preserve the exceptional natural resource values of the Reserve and to provide for recreational activities where appropriate. Areas included within this zone would be the crescent-shaped rock outcrops of the Circle Creek Basin, the ridgeline and northern slopes of the Reserve, the Research Natural Area, and most of the Indian Grove and Graham Peak areas. Use of the areas would focus on natural resource preservation.

Historic Rural Setting Zone

Most of the private lands in the reserve, along with some public lands outside the Historic and Natural Preservation Zone, would be in this zone. The management intent would be to preserve the historic rural setting and to perpetuate ongoing ranching activities that capture the rural character of the Reserve at the time of its establishment.

Public Use and Development Zone

The management intent of this zone would be to provide the facilities needed to support visitor use and reserve operations without degrading the values the reserve was established to preserve.

Zoning Application

The northern portion of the Reserve is zoned in the Natural Area Subzone to include most of the granite rock outcrops, the Research Natural Area, and camping and recreational-designated lands around the rim that encircles Circle Creek Basin.

The California Trail Subzone includes a half-mile corridor around the California and Salt Lake Alternate trails, encompassing the major landmarks, trail remnants, and inscription rocks associated with the trails. The Circle Creek encampment area, Twin Sisters formation, and Pinnacles Pass are also included in this zone.

Surrounding the California Trail Subzone in the southern portion of the Reserve and along the west side is the Historic Rural Setting Zone. This zone encompasses lands used for ranching operations at the time the Reserve was established.

The Public Use and Development Zone includes roads to support facilities. This zone follows the main Reserve road system.

The Reserve management zoning map from the comprehensive management plan shows no zoning along the eastern boundary of the Reserve on Smoky Mountain, which may have been a map error.

For Alternative A, the specific configuration of the management zones is provided in “Figure 5. Alternative A: No Action Alternative.”

Natural Resource Management

Under alternative A, natural resource preservation and protection would continue to be a high priority for management of the Reserve. The natural resource program focus would continue to be on the inventory and monitoring of natural resources working with the NPS Upper Columbia Basin Network. As opportunities arise, Reserve staff would continue to conduct research and resource management projects, inventories, and monitoring. Reserve staff would continue to proactively preserve features associated with the Cassia Silent City of Rocks National Natural Landmark.

Through active management, the Reserve would continue to promote and ensure long-term stewardship and preservation of natural resources. Management would be based on the significance of protecting biological diversity within the Reserve and its role in regional

ecological health. Reserve staff would continue to consider actions that allow or restore natural processes within an ecosystem context.

Climate and Air Quality

Air quality measurements indicate that southern Idaho has some of the best air quality in the continental United States. Because clear airsheds are a fundamental resource value of the Reserve, staff would continue to minimize air pollution from Reserve operations. The Reserve would also maintain current meteorological monitoring activities and continue to collect weather and climate information through the remote automated weather station.

In alternative A, the Reserve would continue to interpret and monitor the effects of human-caused climate change in the Northern Basin and Range Province at City of Rocks and work toward increasing fuel and energy efficiency. The Reserve would implement actions outlined in its climate action plan to reduce greenhouse gas emissions (Reserve 2010c). The Reserve would continue to allow and support existing climate change research within the Reserve.

Water Quality

(See “Natural Resources” in the “Actions Common to All Alternatives” section.)

Geology and Soils

Cassia Silent City of Rocks National Natural Landmark (NNL) contains nationally significant geological and scenic values. Because the NNL findings have not been updated since the Cassia Silent City of Rocks National Natural Landmark was designated in 1974 (Jones 1973), the Reserve would conduct an inventory of pinnacles and sensitive rock features.

To ensure protection of these nationally significant rock formations, an inventory and monitoring program would be developed from which mitigation actions could be identified. The inventory process would concentrate on locating fragile rock formations and identifying impacts on all rock surfaces from visitor activities, particularly the use of climbing equipment and scrambling activities.

Monitoring would determine if impacts over time are significantly altering the natural state of the rock surfaces, accelerating erosion processes, or breaking fragile rock features. The photo survey of fragile rock formations and weathering features—conducted in 1997–98 and entered into GIS—could be used as a benchmark for monitoring.

The disintegrating granite soils that are widespread within the Reserve contribute to erosion and gully formation, both within and beyond the road corridors. Reserve staff would use current best management practices to mitigate soil erosion.

Vegetation and Fire

Native plant communities would continue to be preserved. The Reserve would maintain current levels of vegetation inventory and would conduct limited monitoring as needed, or as indicated by the UCBN I&M program. The invasive plant management plan would continue to be used to refine park priority areas for control of nonnative invasive plants (NPS 2011). In addition, Reserve staff would develop a vegetation management plan for the Reserve that would be coordinated with an updated fire management plan.

The fire management plan would be used to identify where and how fuels should be treated to reduce the damaging impacts of wildfire on the Reserve’s natural and cultural resources, to protect visitors and infrastructure, and to reduce the impact of wildfire on adjacent communities and private land. The plan would also identify where post-wildfire emergency stabilization and rehabilitation may be needed to mitigate impacts from wildfire on the Reserve’s resources.

The Reserve would continue to follow the current fire management strategy of suppressing wildfires entering or originating in the Reserve using an aggressive initial response.

Wildlife

The Reserve would maintain current levels of wildlife inventory activities and would conduct limited monitoring as needed. To keep hunting and trapping within the Reserve at sustainable levels, the Reserve would continue to work with the Idaho Department of Fish and Game.

Soundscapes and Lightscapes

Natural sounds are one of the fundamental resources and values of the Reserve, which is also known as the “Silent City of Rocks.” Acoustical monitoring was conducted in 2008 and 2009 at nine sites within the Reserve. In alternative A, with assistance from the NPS Natural Sounds and Night Skies Division, the Reserve would consider conducting additional monitoring in other areas of the Reserve, if needed. In addition, the Reserve would develop a long-term monitoring protocol and monitor the same sites again after implementation of the GMP to compare any changes.

Natural lightscape is defined as the natural resources and values that exist in the absence of human-caused light. In alternative A, the natural lightscape of the Reserve would be preserved. At this time, there are no permanent artificial lights within the Reserve boundary. The Reserve would work cooperatively to reduce reflective light using best management practices on adjacent state-owned lands. An inventory of night sky quality and characteristics in the Reserve would also be conducted with assistance from the NPS Natural Sounds and Night Skies Division.

Cultural Resource Management

Under alternative A, cultural resource preservation and protection would continue to be a high priority for management of the Reserve. The Reserve would continue to promote and ensure long-term stewardship and preservation of cultural resources through active management. Reserve staff would continue to conduct research and resource management projects, inventories, and monitoring as opportunities arise, and would also work with private landowners within the Reserve.

As one of the highest priorities, Reserve staff would continue to preserve California Trail-era resources associated with the City of Rocks National Historic Landmark in accordance with *The Secretary of the Interior’s Standards for the Treatment of Historic Properties* (NPS 1992).

Other cultural resources relate to homesteading, mining, and ranching after the California Trail era, and American Indian use before the California Trail era. The National Park Service and the Reserve superintendent would continue to work closely with the Shoshone-Bannock Tribes to continue their traditional activities within the Reserve, including gathering of pinyon nuts.

Archeology

Reserve staff would continue to conduct archeological projects to research, identify, and document resources. Surveys and testing would continue at both prehistoric and historic sites to provide information on early occupation of City of Rocks.

Cultural Landscape

In alternative A, Reserve staff would continue to document features, such as emigrant inscriptions, trail ruts, and landscape characteristics associated with the California National Historic Trail corridor to ensure they would remain in good condition. Appropriate preservation treatments would be selected and implemented in accordance with *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*. In addition, Reserve staff would work in partnership with stakeholders to clarify the route of the California Trail corridor using remote sensing technology.

Features such as remnants of homesteads, as well as archival and museum objects associated with mining, homesteading, and ranching, would continue to remain in good condition. Appropriate preservation treatment would be carried out in accordance with *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*. For those features located on private land, such as the Nicholson Ranch and the Moon Homestead site, the Reserve would

work in partnership with existing landowners for preservation treatments, as interest and opportunities arise.

Special Designations

Hunting and Trapping

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Grazing

Livestock grazing in the Reserve would be maintained at current levels. Grazing would be limited to those management zones identified in the Reserve’s 1996 comprehensive management plan as appropriate for grazing. Total animal unit months would not exceed the 1991 level of use and could be reduced or modified, if necessary, for the protection of natural and cultural resources. Land acquired by the National Park Service where grazing is vacated by the landowner would not be made available to new grazing permittees. Instead, based on the grazing management plan, at the discretion of the superintendent, these lands may be used for authorized grazing of livestock by the remaining grazing permittees.

The Reserve would update the current grazing management plan to reflect acquisition of private lands since 1997. Because implementation of the grazing management plan recommendations may affect wetlands within the Reserve, if implemented these actions would need to be addressed in a future NPS wetlands statement of findings. This would ensure that the update to the grazing management plan complies with Executive Order 11990, “Protection of Wetlands.”

The updated plan would enable livestock grazing to continue in the Reserve at an economically viable level for the permittees, while meeting long-range goals to preserve and protect the significant natural and cultural resources and the scenic quality of the Reserve. As called for by the comprehensive management plan, grazing in wetland and riparian areas would continue to be systematically eliminated and grazing

would continue to be prohibited in the Research Natural Area. Cattle would be excluded from wetland and riparian areas through a variety of means, such as by providing alternate water sources or adding fencing, as appropriate.

Grazing Improvements or Changes in the Reserve Since 1989

- 14% reduction in public lands grazed in the Reserve
- 4% reduction in animal unit months
- Indian Grove wetlands fenced to cattle
- Some springs fenced to exclude cattle
- Elimination of grazing in Lower Circle Creek
- Circle Creek Allotment permanently closed, fences removed to restore cultural landscape
- NPS purchase of properties allowed dispersal of animal unit months over a larger land area

Research Natural Area

The Research Natural Area contains unique geologic formations and is the northern limit of the pinyon-juniper forest type in North America, exhibiting high-quality native vegetation and old-growth tree stands. The Research Natural Area is part of a cougar migration corridor, and its geologic formations provide important habitat for species such as bats (see the “Mammals” section in “Chapter 4: Affected Environment”).

Reserve staff would maintain the existing 312-acre Research Natural Area and continue to manage it for its outstanding natural features, natural processes, natural diversity, and ecological values. There would be some modifications to the existing allotment along the western boundary of the Research Natural Area by working with the current permittee to remove the unintentional overlapping grazing allotment from the RNA boundary.

Hunting and trapping would also continue to be excluded from the Research Natural Area according to NPS *Natural Resource Management Reference Manual* 77 (NPS 2004a).

Natural Historic Landmark

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3: Management Zones.”)

National Natural Landmark

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3: Management Zones.”)

Section 36

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3: Management Zones.”)

Interpretation and Education

The Reserve would continue to provide interpretive and educational opportunities on the various City of Rocks interpretive themes at the current visitor center as well as through existing waysides, kiosks, brochures, special events, and the internet. Current wayside exhibits in the Reserve would be maintained to NPS standards.

The City of Rocks National Reserve visitor center would continue to provide brochures, maps, educational gifts, and souvenirs related to the resources of City of Rocks.

Reserve staff would continue to work with other organizations that use the Reserve as a place to teach, including colleges and universities (such as geology and recreational programs), nonprofit organizations (such as the National Outdoor Leadership School, Boy and Girl Scouts of America, the Access Fund, and the Oregon-California Trail Association), environmental organizations, and educational institutions.

Interpretive Programs

Reserve staff would continue to conduct a variety of interpretive programs and special events and provide educational materials and activities for visitors, including arranging for guest speakers. Land use activities and features associated with mining, homesteading, and ranching, such as the Nicholson Ranch and the Moon Homestead site, would continue to be interpreted to the public on a limited basis as opportunities arise.

Youth

Activities for youth would continue to be available. Reserve staff would continue to sponsor student internships, Junior Ranger programs, and the Youth Conservation Corps program, in addition to holding other special events and programs for youth. Winter and summer youth day camps would also continue to be provided, pending available staffing and funding.

Visitor Experience

The multitude of dramatic granite rock formations and the topography of the rural landscape provide a wide array of recreational opportunities for Reserve visitors. In alternative A, the Reserve would continue to offer its current level of visitor services. The Reserve would continue to provide a diversity of uses consistent with administrative policies and resource protection.

Recreational Opportunities

Traditional recreational activities such as hiking, biking, horseback riding, birding, and climbing would continue to be accommodated at the Reserve. Activities, such as climbing, would continue to be limited at times for occasional seasonal closures to protect nesting wildlife.

Reserve staff would update the 1998 climbing management plan (Reserve 1998a) to better address user capacity and to implement any changes resulting from this general management plan.

Trails

The current trail system would be maintained.

Climbing

Climbing in the Reserve would continue to be managed under the 1998 climbing management plan.

Equestrian Staging

The Reserve would continue to provide equestrian camping and staging at Smoky Mountain Campground and at the Juniper group campsite within the Reserve.

Commercial Visitor Services

In the No Action Alternative, commercial guides and outfitters would continue to provide rock climbing and horseback riding services to visitors. The overall type and level of permitted guides and outfitters currently operating within the Reserve would be maintained (see “Chapter 4: Affected Environment” for more detailed information on commercial services).

NPS Visitor and Administrative Facilities

Reserve Campsites

The Reserve would continue to offer camping opportunities within the Reserve through a reservation system, and would generally retain the same number of sites and camping areas.

Visitor Facilities

Reserve staff would maintain the array of existing waysides, kiosks, exhibits, and vault toilets within the Reserve and would replace or add to these as needed to support existing or planned operations.

Reserve Roads

Access for motorized and nonmotorized transportation would continue to be provided on existing Reserve-managed roads, such as Circle Creek Overlook Road and Logger Springs Road (see the “Cassia County Road Network” section below for additional discussion of roads).

Partnerships

IDPR Visitor and Administrative Facilities

Visitor Center

In the short term, the temporary existing visitor center with its administrative and visitor services functions would remain located within the Castle Rocks State Park Administrative Unit in Algo, on state-owned land. This small, century-old house would continue to serve as the main visitor center for the Reserve and Castle Rocks State Park. The space in the visitor center totals 1,035 square feet (621 square feet downstairs and 414 square feet upstairs), which would continue to be insufficient to meet the needs of the more than 100,000 annual visitors to the Reserve and Castle Rocks State Park or to provide offices for the current staff. This small, poorly-configured house would continue to provide office space for: all administrative tasks; five permanent and some seasonal and visiting staff (working in library and co-using existing offices); visitor information and backcountry registration; film viewing area; and retail store.

In the long-term, the Idaho Department of Parks and Recreation would seek to develop a permanent visitor center on state-leased BLM land near Smoky Mountain as approved in the Reserve’s 1996 comprehensive management plan and in the 2006 *Castle Rocks State Park Master Plan*. It is also part of the BLM lease agreement.

The proposed 9,500-square-foot visitor center would include a lobby with a staffed information desk, a backcountry registration area, a small retail sales area, exhibit space and museum, a small theater seating up to 70, restrooms, a multipurpose room, interpretive staff offices, and adjacent parking as described in the comprehensive management plan (Reserve 1996a).

According to the 2006 *Castle Rocks State Park Master Plan*, a replacement visitor center would be shared by Castle Rocks State Park and the Reserve and would be the main point of visitor contact. The 2006 plan estimated costs for this visitor center at \$2.2 million (\$2.5 million in 2012 dollars) and mentions the inclusion of an indoor theater for interpretation (IDPR 2006).

The National Park Service does not have funding programmed for any capital contribution to this visitor center, and based on recent construction budget appropriations, is unlikely to be able to obtain funding in the foreseeable future. NPS capital investments in this proposed structure are further complicated by policies that prohibit funding for structures outside NPS boundaries; the proposed site near Smoky Mountain is not within the Reserve boundary. The Idaho Department of Parks and Recreation, however, may proceed with development of a replacement visitor center if state funds become available. If so, the National Park Service would continue to provide operations and maintenance support and could provide design consultation, or assistance if requested by the Idaho Department of Parks and Recreation through the existing cooperative agreement.

Administration

(See “Reserve Management and Operations” in the “Actions Common to All Alternatives” section.)

Maintenance

(See “Reserve Management and Operations” in the “Actions Common to All Alternatives” section.)

Employee Housing

The Idaho Department of Parks and Recreation would continue to provide limited employee housing in the two employee residences and four campsites for volunteers at the Castle Rocks State Park Administrative Unit.

Smoky Mountain Campground

Smoky Mountain Campground, located on land leased by the state from the Bureau of Land Management, would continue to serve as the main campground for recreational vehicles, equestrians, and others camping outside and adjacent to the Reserve.

Because it was approved in the 1996 comprehensive management plan and 2006 *Castle Rocks State Park Master Plan*, the Idaho Department of Parks and Recreation may decide to proceed with the development of the phase II additional camping loop on the

BLM lease in cooperation with the Bureau of Land Management, as described in the current lease agreement. This additional loop would provide needed campsites within the Reserve during the peak season. In alternative A, this development is envisioned as a paved loop with campsites primarily for recreational vehicles similar to the existing campground loop of 38 campsites. Infrastructure—such as power and a water supply—already exists and would include an accessible toilet and additional showers if the water supply is adequate. The second loop would contain up to 62 additional campsites (to equal the 100 campsites called for in the comprehensive management plan and approved by the lease agreement).

The exact location of the second campground loop in the Recreation and Public Purpose (R&PP) lease would be determined based on analysis of potential impacts on resources. In addition, the second campground loop would be designed to minimize any visual impacts. Tree cover would be maintained or added to screen campsites from each other and from the California Trail corridor, where possible.

Similar to the proposed visitor center, although the Idaho Department of Parks and Recreation would fund the construction of the new campground loop and amenities, the National Park Service would continue to provide operations and maintenance support through the existing cooperative agreement. NPS assistance could also include design consultation or assistance.

Visitor Facilities

The Idaho Department of Parks and Recreation would continue to maintain existing waysides, kiosks, exhibits, and vault toilets located on NPS- and state-owned land.

Cassia County Road Network

Cassia County owns and maintains the two unpaved county roads—City of Rocks Road and Twin Sisters Road—through the Reserve that are part of the designated City of Rocks Back Country Byway. The Reserve would encourage Cassia County to maintain these roads to ensure a park-like feel and a safe, scenic driving

experience using the historic road alignment to the extent possible. This would include keeping the roads through the Reserve unpaved. The National Park Service and the Idaho Department of Parks and Recreation would continue to work cooperatively with the county on visitor safety, signage, and information.

All-terrain vehicles (ATVs) and dirt bikes are allowed on county roads and Reserve roads, including Logger Springs Road (owned by the National Park Service), which accesses USFS land north of the Reserve. The National Park Service and the Idaho Department of Parks and Recreation would also continue to work with the Cassia County to maintain jurisdictional county roads within the Reserve, as needed.

Other Partnerships

Reserve staff would continue to work with adjacent landowners and landowners within the Reserve on resource protection and visitor use issues of mutual concern.

Environmental Sustainability

The National Park Service and the Idaho Department of Parks and Recreation would continue to partner to reduce energy use and to undertake other practices that would contribute to making the Reserve more environmentally sustainable. The Idaho Department of Parks and Recreation would continue its recycling program. The Reserve would pursue implementation of energy efficiency actions outlined in its climate action plan (Reserve 2010c), and would follow sustainability guidelines set forth in the NPS *Green Parks Plan* (NPS 2012c). In addition, the National Park Service would encourage the Idaho Department of Parks and Recreation to implement NPS *Management Policies 2006*, which require new visitor centers or major visitor services facilities to meet LEED (Leadership in Energy and Environmental Design) standards at a minimum rating level of silver.

Reserve Boundary

The existing Reserve boundary would be maintained. There would be no boundary modification under alternative A.

Operations

Staffing

Alternative A assumes current staffing levels would be maintained at seven classified full-time equivalent employees (FTEs). One FTE is one person working 40 hours per week for one year, or the equivalent. The total number of FTEs is the number of staff required to maintain the assets of City of Rocks National Reserve at an appropriate level, provide acceptable visitor services, protect resources, and generally support Reserve operations. The percentage of funding for each position provided by the National Park Service and the Idaho Department of Parks and Recreation is stipulated in the current 2014 operation plan and guidelines for management and is listed in the following table under Funding Agency. The table does not include seasonal staffing, which would vary depending on needs and funding allocations.

TABLE 4. ALTERNATIVE A, STAFFING		
Position	IDPR	NPS
Park Manager III	100%	
Assistant Park Manager		100%
Maintenance Foreman	75%	25%
Climbing Ranger	25%	75%
Park Ranger – Visitor Services		100%
Park Ranger – Natural Resources	50%	50%
Park Ranger – Cultural Resources		100%

*FTE percentages between IDPR and NPS are stated in the "2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)."

Estimated Costs

The implementation of the approved plan, no matter which alternative is selected, would depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan would be forthcoming. Full implementation of the plan could be many years in the future.

Annual Operating Costs

Annual operating costs are the total costs per year for maintenance and operations associated with alternative A, including utilities, supplies, staff salaries and benefits, leasing, and other materials. Cost and staffing estimates assume that the alternative is fully implemented as described in the narrative.

FTE salaries and benefits are included in the annual operating costs.

One-time Costs

For the No Action Alternative, one-time facility costs (table 5) would include costs associated with projects already approved and fully funded. However, because the proposed visitor center would be constructed by the Idaho Department of Parks and Recreation on BLM-leased land and has been approved in the Reserve's 1996 comprehensive management plan and the 2006 *Castle Rocks State Park Master Plan*, \$2.5 million is included here with funding assigned to the Idaho Department of Parks and Recreation. It is fully recognized that the Idaho Department of Parks and Recreation, in cooperation with the National Park Service, would seek out a variety of potential funding sources to support the design and development of the approved visitor center facility. This would include, but not be limited to, exploring funding potential through the Federal Transportation Enhancement Program, private charitable foundations, and other potential sources of support. In addition, the No Action Alternative

would include an additional \$4.6 million from the Idaho Department of Parks and Recreation for the construction of 62 new sites (primarily RV sites) on a new paved loop at Smoky Mountain Campground.

One-time nonfacility costs would include actions for the preservation of cultural or natural resources not related to facilities, the development of visitor use tools not related to facilities, and other park management activities that would require substantial funding above park annual operating costs. Examples include Facility Management Software System (FMSS) support, Volunteer In Park (VIP) grants, Youth Conservation Corps programs, and maintenance and rehabilitation of trails.

Program Support costs include technology, grants, development of plans, or other program support.

These costs are in 2012 dollars and are based on general "Class C" estimates for site development and construction. (According to the 2011 NPS Cost Estimating Requirements Handbook, Class C construction cost estimates are used for alternatives and are referred to as conceptual estimates by the design and construction industry. These estimates are generally prepared without a fully defined scope of work. They are general in nature and representative of a broad-based vision rather than focused on specific details.) Prior to submitting funding requests for the design and construction phases, "Class B" estimates are required, based on detailed site and facility designs.

Prioritizing Actions in Alternative A

Actions in alternative A would continue to be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy, and purpose) or address promises made in the past to the public such as development of an equestrian staging area.

Low priority actions would address visitor opportunities and experiences, such as enhanced facilities, and would depend on sustained funding.

Deferred Maintenance Offset

Deferred maintenance is maintenance and repair activities that were not performed when they should have been or were scheduled and which, therefore, are put off or delayed for a future period. Maintenance and repairs are activities directed toward keeping fixed assets in an acceptable condition. Total costs for deferred maintenance offset in alternative A are listed in table 5. Deferred maintenance costs would “offset” the total one-time costs. For example, the total one-time costs are \$7,155,500, which would be reduced to \$7,132,500 after considering the deferred maintenance offset of \$23,000.

Cost estimates for alternative A are identified in table 6.

TABLE 5. SUMMARY OF ONE-TIME COST FOR ALTERNATIVE A, NO ACTION ALTERNATIVE (CONTINUATION OF CURRENT MANAGEMENT)

LOCATION	PROJECT	PROGRAM SUPPORT	FACILITY REHABILITATION/ REPLACEMENT	RESOURCE MANAGEMENT	NEW CONSTRUCTION	PRIORITY*	DEFERRED MAINTENANCE OFFSET
Alternative A							
Reservewide	FMSS support	\$8,000				1	
	VIP grant	\$3,000				1	
	Youth Conservation Corps	\$7,500				1	
	Public Land Corps maintain and rehabilitate trails	\$25,000				1	-\$23,000
DM Subtotal	Trails						-\$23,000
Smoky Mountain Campground	Smoky Mountain Campground, 62 sites				\$4,600,000**	2	
DM Subtotal							
BLM R&PP Lease Site	CRMP approved visitor facility		\$2,512,000**			2	
DM Subtotal							
Total Cost by Categories		\$43,500	\$2,512,000		\$4,600,000		-\$23,000
Total Priority 1 Costs		\$43,500					
Total Priority 2 Costs							
Total One-Time Improvement Cost of Alternative**							
Deferred Maintenance Offset							

*Priority 1 projects include projects that emphasize resource protection, threats, and visitor safety. Priority 2 projects include all other projects important to the full implementation of the alternative, including those that address visitor opportunities and experiences such as enhanced facilities as funding allows and could be sustained. Costs are in 2012 dollars.

**Total Capital Cost includes total Priority 1 and Priority 2 costs but does not include a reduction for Deferred Maintenance Offset.

**IDPR costs.

TABLE 6. ALTERNATIVE A, SUMMARY OF COSTS*

Category	Costs
Annual Operating Costs **	
Existing Base Funding	\$698,647
New Personnel Costs	-
Total Annual Operating Costs	\$698,647
Personnel	FTE
Permanent	7
One-time Costs	
Total Existing Project Costs	\$43,500
One-Time Nonfacility Costs	
Program Support	\$43,500
Priority 1***	
Priority 2	
Resource Management	\$0
Priority 1	\$0
Priority 2	\$0
Total Nonfacility Costs	\$43,500
One-Time Facility Costs	
New Construction	\$4,600,000
Priority 1	\$0
Priority 2	\$4,600,000++
Facility Rehabilitation	\$2,512,000
Priority 1	\$2,512,000++
Priority 2	\$0
Total Facility Project Costs	\$7,112,000
Total Priority 1 Costs	\$43,500
Total Priority 2 Costs	\$7,112,000
Total One-Time Costs	\$7,155,500
Deferred Maintenance Offset	\$23,000

*Figures are rounded.

**Does not include funding for Castle Rocks State Park, although some costs support both the Reserve and the state park: for example, some staff positions and the visitor center.

***Actions in alternative A would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy, and purpose) or address promises made in the past to the public such as development of an equestrian staging area. Low priority actions address visitor opportunities and experiences such as enhanced facilities, as funding allows and could be sustained.

++IDPR costs.

ALTERNATIVE B: SILENT CITY OF ROCKS, PREFERRED ALTERNATIVE

General Description

Alternative B has been identified as the preferred alternative for both the Idaho Department of Parks and Recreation and the National Park Service. In this alternative, the spectacular scenic quality, geology, biological diversity, and cultural landscape experienced by pioneers, early settlers, and contemporary visitors would be highlighted. Alternative B would emphasize a backcountry-type visitor experience that allows for self-discovery, self-reliance, self-determination, and the freedom to take risks. This alternative would encourage self-directed exploration of the Reserve's western landscape and facilitate individual discovery to evoke a powerful connection to the Reserve and its history. Visitors would be immersed in the western experience and inspired by the open landscapes and wildness of the outdoors.

Management Zones Applied to Alternative B

The management zones for alternative B are taken from "Table 3. Management Zones." Specific geographic (mapping) configuration of the management zones is provided in "Figure 6. Alternative B: Silent City of Rocks."

In alternative B, the Visitor Facilities and Access Zone would be confined to the current developed recreational facility areas in the Reserve, such as the campsites located along the rim above Circle Creek Basin, Finger Rock, Twin Sisters, and the Juniper group campsite. It also would include the Circle Creek Overlook. Facilities for visitors, such as restrooms, parking, and picnic areas, would also be located in this zone.

The Transition Zone would be applied to an area surrounding the Visitor Facilities and Access Zone. The Transition Zone would include dispersed recreational facilities such as walk-in campsites, trails, waysides, and a proposed equestrian staging area on the west side of

the Reserve to complement the equestrian staging area at Smoky Mountain Campground. This zone stretches from Bread Loaves to the California Trail corridor.

In alternative B, the Natural Zone would include the higher rocky elevation lands at the northern end of the Reserve surrounding the Research Natural Area and Circle Creek Basin and those to the southeast along the flanks of Smoky Mountain.

The Research Natural Area Zone would be slightly larger in alternative B than the No Action Alternative, to more closely follow terrain features, which would aid on-the-ground management.

The Historic Rural Setting Zone would be applied to Circle Creek Basin and the ranchlands in the southwest of the Reserve. To allow for no net loss of technical climbing, a finger of this zone would also extend north of Twin Sisters to allow for technical climbing, but would continue to exclude technical climbing on the Twin Sisters formation, in accordance with the existing ban on technical climbing in this area. Taken altogether, alternative B has the largest combined Historic Rural Setting and Natural Zones, which would facilitate the backcountry-type visitor experience intended in this alternative concept.

The California Trail Zone would primarily be confined to a one-half-mile corridor along the northern alignment of the California National Historic Trail, but would also be extended to include the Twin Sisters area, register rocks (rocks with inscriptions), the Salt Lake Alternate, and other California Trail-defining features, including the southern trail offshoot on the eastern side of the Reserve, in order to limit fixed-anchor climbing and maintain a less-developed, rural character in these key areas.

Natural Resource Management

Management of natural resources would be the same as in alternative A with ongoing inventory and monitoring of natural resources to better understand their significance and promote their stewardship in an ecosystem context. Reserve staff would also increase public understanding of resources through the application and dissemination of research. In addition, a resource stewardship strategy would be produced to guide natural and cultural resource management.

Climate and Air Quality

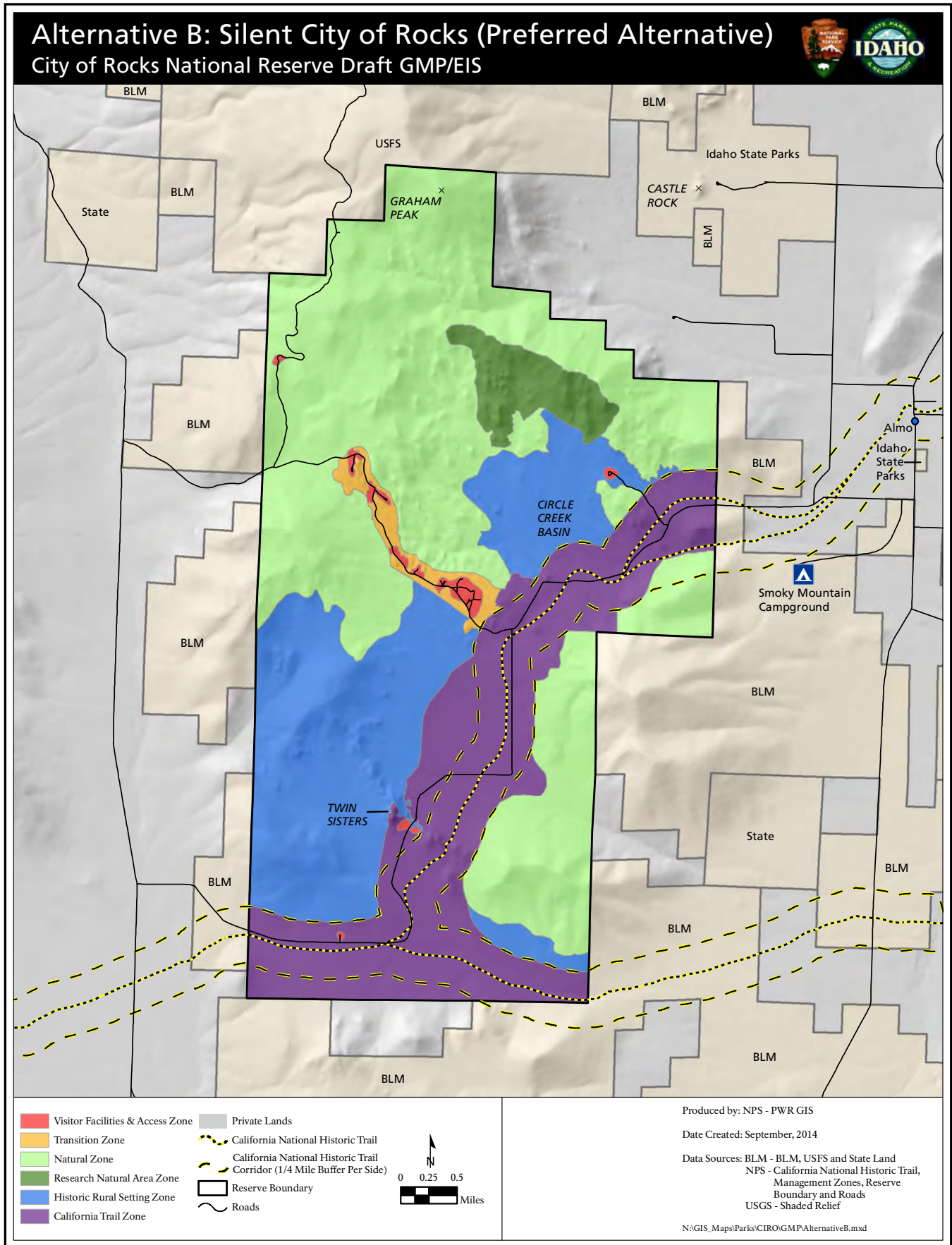
In alternative B, the Reserve would maintain meteorological monitoring activities and conduct periodic particulate matter and ozone monitoring. Reserve staff would be proactive in raising awareness of air pollution sources within and near the Reserve's airshed. To maintain air quality, the Reserve would continue to minimize air pollution from operations and to provide public outreach and education regarding existing and potential air pollution impacts to the Reserve.

Alternative B would implement the same climate change mitigation, research, and interpretation strategies outlined in alternative A, including interpretation of the effects of climate change and implementing the Reserve climate action plan to reduce greenhouse gas emissions. In addition, the minimal development emphasis in alternative B would provide for a lower facility-related energy and carbon footprint. To further reduce carbon emissions, Reserve staff would maximize energy efficiency, conservation, and sustainability associated with any new development. Alternative B would also encourage RNA research that analyzes the impacts of climate change on different vegetation types over time.

Water Quality

(See Natural Resources in the "Actions Common to All Alternatives" section.)

FIGURE 6. ALTERNATIVE B: SILENT CITY OF ROCKS



Geology and Soils

As in alternative A, the Reserve would conduct an inventory of rock features associated with the national natural landmark.

To prevent erosion and gully formation in disintegrating granite soils, the Reserve would improve drainage on existing roads and trails by facilitating sheet flow, rather than concentrating water flow. New trail and facility construction would use best management practices to minimize erosion. (Best management practices apply the most current means and technologies available to not only comply with environmental regulations, but also achieve a superior level of adherence to environmental standards.) The Reserve would develop road standards for Reserve roads located on disintegrating granite soils and work with the county to improve road maintenance standards on county maintained roads within the Reserve.

Vegetation and Fire

In alternative B, vegetation management actions would be the same as in alternative A.

Fire management actions would be the same as in alternative A, plus the Reserve would update the fire management plan and would consider a full range of fire management strategies within the Reserve.

A contingency plan would also be developed to identify areas where high fire intensity and post-fire erosion events could affect infrastructure due to increased water runoff and highly erodible granitic soils.

Wildlife

Unlike alternative A, where only specific wildlife species would be inventoried, in alternative B the Reserve would conduct a systematic wildlife inventory to increase natural resources baseline information through research and field inquiry. This information would be used to update and prioritize the Project Management Information System (PMIS) funding requests related to wildlife.

The Reserve would develop and implement a wildlife monitoring plan to detect long-term population change and guide ongoing management of populations and habitats. The Reserve would collaborate with federal, state, county, and private entities to determine the feasibility of reintroducing extirpated wildlife, such as pygmy rabbit, pronghorn, and peregrine falcon.

Soundscapes and Lightscapes

Soundscapes would be treated the same as in alternative A. In addition, Reserve staff with assistance from the Natural Sounds and Night Skies Division would prepare and implement a soundscapes management plan to protect the natural sounds of the Reserve and reduce noise-generating activities, such as maintenance vehicles and equipment, lawn mowers, leaf blowers, and other human-caused noise. The Reserve would also consult with the U.S. Department of Defense to reduce noise impacts from military overflights.

Lightscapes would be treated the same as in alternative A. In addition, Reserve staff would work with the NPS Night Sky program to develop a plan to maintain and interpret the night sky.

Cultural Resources Management

Cultural resource management in alternative B would be the same as in alternative A. Reserve staff would also work to increase public understanding of resources through the application and dissemination of research. In addition, a resource stewardship strategy would be produced to guide natural and cultural resource management.

Archeology

Archeological management would be the same as in alternative A, plus Reserve staff would provide additional waysides and self-guided materials to promote visitor understanding of archeological resources.

City of Rocks National Reserve is one of the best locations for viewing extant wagon ruts from the California Trail era. To improve preservation of these, the Reserve would develop an archeological management plan to determine the best way to manage California Trail ruts.

Recent archeological survey and testing at City of Rocks National Reserve adjacent lands has revealed a high density of prehistoric sites and isolated artifacts. These sites and artifacts have value to tribes affiliated with the area as well as for scientific understanding of the human past. Because of the emerging pattern of human occupation in the area, there is a need to assess sites and archeological landscapes that are vulnerable to impacts from the current use of the area. The development of an archeological district would improve stewardship of prehistoric sites and isolated artifacts by delineating areas that could require a higher degree of management oversight. Under alternative B, the Reserve would work with partners to develop an archeological district outlining management zones for known archeological resources to ensure appropriate stewardship of such resources.

Cultural Landscape

The treatment of the cultural landscape of the California Trail would be the same as in alternative A. In addition, Reserve staff would conduct a condition assessment and evaluate and monitor features associated with the California Trail corridor to detect changes over time and to diminish impacts. The Reserve would also develop a treatment plan for features associated with the California Trail corridor to ensure they remain in good condition through preservation treatment in accordance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. Stabilization and preservation would be the baseline treatment until a specific treatment (implementation) plan is developed.

As in alternative A, the Reserve would work in partnership with private landowners within the Reserve and with stakeholders to clarify the route of the California Trail corridor.

In alternative B, the Reserve would also protect, stabilize, and preserve land use patterns and features associated with mining, homesteading, and ranching on public lands in accordance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. For those features within the Reserve on private land, such as the Nicholson Ranch and the Moon Homestead, Reserve staff would collaborate with landowners to protect, stabilize, and preserve land use patterns and features associated with mining, homesteading, and ranching, whenever possible. The Reserve would also interpret key features through on and off-site media.

Special Designations

Hunting and Trapping

(See "Special Uses and Designations" in the "Actions Common to All Alternatives" section and "Table 3. Management Zones.")

Grazing

Livestock grazing in the Reserve is allowed in all management zones except in the Research Natural Area Zone. Grazing in wetland and riparian areas would be systematically eliminated. Cattle would be excluded from wetland and riparian areas through a variety of means, such as by providing alternate water sources or adding fencing, as appropriate.

In alternative B, grazing would continue within the Reserve but would be reduced over time as permittees discontinue requests for permits due to changing business models or abandonment. The presence of cattle on the landscape would continue, but total head and animal unit months would be expected to decrease over time through attrition. Attrition would be voluntarily initiated by permittees, not Reserve management.

As opportunities arise, grazing allotments could be reorganized to achieve maximum benefits for both natural and cultural resources. As allotments are discontinued, increased protection of the California Trail Zone would be emphasized and cattle grazing would be reduced or eliminated in the Visitor Facilities and Access Zone.

The grazing management plan would be updated to reflect these changes. Because implementation of the grazing management plan recommendations may affect wetlands within the Reserve, if implemented these actions would need to be addressed in a future NPS wetlands statement of findings. This would ensure that the update to the grazing management plan complies with Executive Order 11990, “Protection of Wetlands.”

Research Natural Area

In alternative B, the Reserve would refine the boundary of the Research Natural Area to conform to landscape features to increase management efficiency and to encompass a greater variety of high-quality terrain features. This boundary refinement would maintain grazing where grazing is currently occurring. This expansion would add three small areas to the south (part of the boundary refinement) and a high elevation valley to the northwest, for a total of 485 acres. Expansion of the Research Natural Area would occur in areas of steep terrain that cattle cannot easily access. Expanding the Research Natural Area would increase available wildlife habitat for several Idaho Sensitive Species. There would also be more opportunities for visitors to explore an area of southern Idaho in its natural condition with few human impacts.

As in alternative A, hunting and trapping would continue to be excluded in the Research Natural Area according to NPS Natural Resource Management Reference Manual 77. There would be some modifications to the existing allotment along the western boundary of the Research Natural Area by working with the current permittee to remove the overlapping grazing allotment from the Research Natural Area.

Natural Historic Landmark

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

National Natural Landmark

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Section 36

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Interpretation and Education

The primary concept for interpretation and education would be the same as in alternative A; however, in alternative B, the Reserve would also provide more self-guided booklets and brochures, as well as additional self-directed interpretive and educational opportunities at the existing visitor center, more waysides and kiosks, and more online information. Nonpersonal interpretive media would be expanded and there would be less emphasis on staff presence, guided programs, and tours.

Because some visitors may not stop at the visitor center, an unstaffed kiosk would be constructed at Smoky Mountain Campground and at Bath Rock within the Reserve to improve orientation for visitors and to provide self-guided materials about the Reserve. More emphasis would also be placed on providing information and orientation materials in advance, using the internet and other electronic media.

Interpretive Programs

Interpretive programs would be the same as in alternative A. In addition, the Reserve would incorporate tribal perspectives and involvement into interpretive programming. Reserve neighbors would be encouraged to participate in interpretation and would be given opportunities to tell their stories about the Reserve. Interpretation would also incorporate information provided by researchers studying the Reserve’s resources and stories.

This alternative would support an extended outreach program to schools and other educational organizations that would inspire more students to visit, experience, and learn about the Reserve's spectacular scenic quality, geology, biological richness, and cultural landscape.

Reserve staff would work with the NPS Pacific West Region and Harpers Ferry Center staff to develop a long-range interpretive plan based on the interpretive themes developed in the City of Rocks National Reserve Foundation Document. (See "Chapter 2: Foundation for Planning and Management.")

New programs, such as an artist-in-residence program, would bring educational opportunities to the Reserve and local community. These programs would link with partners to encourage self-expression and connection to the Reserve's resources through art, photography, and writing. This alternative would also emphasize off-site interpretation such as the Parks as Classroom program, where park rangers visit area schools and lead programs on Reserve and regional cultural and natural resource topics.

Youth

Youth activities would be the same as in alternative A, plus the Reserve would offer age-appropriate outdoor learning opportunities for recreation that provide youth with challenging experiences in a supportive environment, such as climbing or wilderness-type experiences.

Visitor Experience

Alternative B would provide for a backcountry-type visitor experience emphasizing solitude and self-discovery. In this alternative, visitors would predominantly experience the Reserve on their own, using self-guided waysides and interpretive materials.

Recreation Opportunities

Recreational opportunities would be the same as in alternative A.

Trails

As in alternative A, the current trail system would be maintained. In alternative B, a new trail would be developed for hiking, bicycling, and equestrian use within the Reserve ("Figure 7. Trail Addition for Alternative B"). The proposed trail would begin at the end of the California Trail hiking trail, near Nicholson Ranch, and eventually connect with the Tea Kettle Trail. The route of the trail could keep to the east and south of the City of Rocks Road, and then cross over the Twin Sisters Road just below its intersection with the City of Rocks Road. This new trail would allow visitors to explore signature rocks and the California Trail corridor without having to drive, walk, or bike along the road. Hikers wanting to hike to the summit of Smoky Mountain could continue to use the existing road from Smoky Mountain Campground across BLM-managed land.

In addition, in alternative B, the Reserve would develop a trails management plan to consider modifications for trail improvements within the Reserve and to explore the creation of new trail connections in partnership with adjacent land management agencies, such as the Bureau of Land Management and the U.S. Forest Service. New trail connections could include a possible link to Castle Rocks State Park and the USFS Independence Lake area.

Climbing

Climbing management would be the same as in alternative A, plus the Reserve would update the climbing management plan.

Equestrian Staging

As in alternative A, the Reserve would continue to provide equestrian camping and staging at Smoky Mountain Campground (to the east and outside the Reserve) and at the Juniper group campsite (to the south) within the Reserve.

Over the years equestrians have expressed interest in developing an equestrian staging area on the west side of the Reserve that would give riders easier access to trails on the west side. It would also improve safety and resource degradation created by the current

indiscriminate trailer parking along the county road. A preliminary analysis of site suitability for equestrian staging facilities was conducted in 2005. (For more information about the preliminary analysis, see “Equestrian Use” under the “Visitor Use and Recreation” section in “Chapter 4: Affected Environment.”)

In alternative B, the Reserve would develop an equestrian staging area for day-use parking near the Bread Loaves intersection to supplement the equestrian camping provided at Smoky Mountain Campground and the Juniper group campsite. This development would be located out of the California Trail viewshed in a concealed, flat area and would connect to the North Fork Trail for equestrian users. Planned development could include a loop road spur off City of Rocks Road with parking for three to five horse trailers. This location would be close to existing water and restrooms. Signage would be minimal and no additional facilities would be provided.

If additional studies show the Bread Loaves area is not suitable for this use, Elephant Rock is another potential site that met the 2005 preliminary evaluation criteria for an equestrian staging area. A staging area could be sited behind Elephant Rock off the unpaved road spur. This area provides good drainage and concealment of vehicles from the California Trail viewshed.

Specific locations would be further explored and analyzed in an implementation plan following a Record of Decision for this GMP and in close consultation with the State Historic Preservation Office and Advisory Council on Historic Preservation.

Commercial Visitor Services

Commercial visitor services would be increased to accommodate more youth camps, climbing, and horseback riding opportunities within the Reserve, especially those providing more wilderness-type experiences.

NPS Visitor and Administrative Facilities

Reserve Campsites

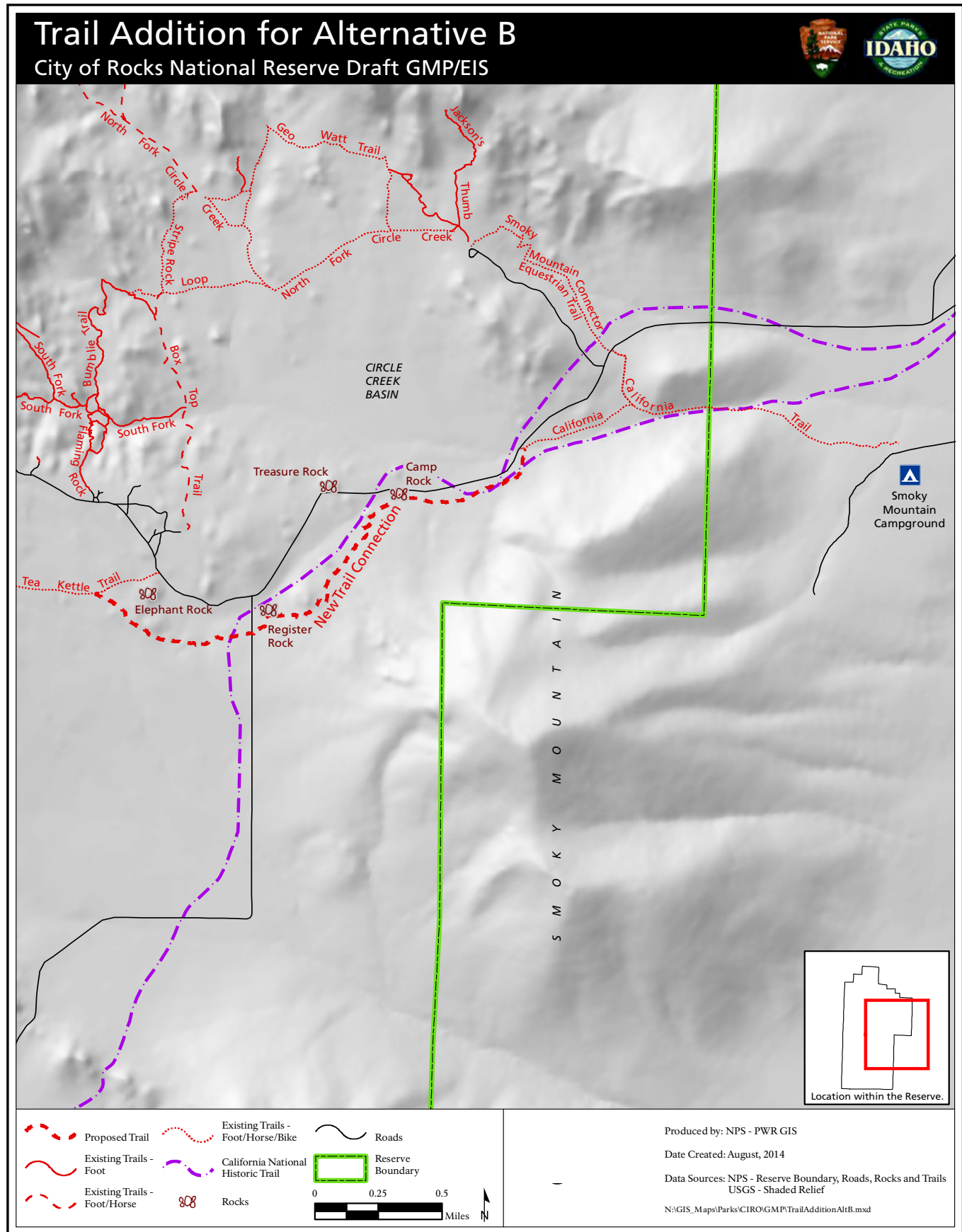
In alternative B, camping in the Reserve would be reconfigured to address resource impacts and visual and safety issues based on the recommendations of the Rim Development Concept Plan for City of Rocks National Reserve (Appendix D). Evaluation for this development concept plan was conducted by members of the planning team during summer 2010 as part of the GMP, primarily to analyze camping in the rim area of the Reserve to guide future visitor use and facility needs in this highly used area. Most campsites in the Reserve are located along the southern and western rim of Circle Creek Basin (known as “the Rim”). These sites offer prime views of the pinnacles as well as more expansive views of Granite Ridge that completes the northern encirclement of the basin.

As described in more detail in the development concept plan, 9 campsites would be converted to picnicking or day use parking, 13 campsites would be closed and rehabilitated, and 22 new campsites would be added, resulting in improved resource protection and visitor safety with no net loss of the 64 campsites currently within the Reserve. Strategies for campsite closure, conversion to picnicking, or new development are based on analysis of existing user conflicts, safety and maintenance issues, resource impacts, parking needs, location and access to vault toilets, interpretive trails, site circulation conflicts, undesirable site locations, and picnicking opportunities (“Appendix D: Rim Development Concept Plan for City of Rocks National Reserve”).

Visitor Facilities

Management of visitor facilities inside the Reserve boundary would be the same as alternative A. In addition, the Reserve would develop additional waysides and exhibits based on the interpretive themes as well as on various topics promoting self-learning and discovery. Two unstaffed kiosks would be constructed at Bath Rock and at the Smoky Mountain Campground to improve orientation for visitors and to provide self-guided materials to visitors who do not stop at the visitor center.

FIGURE 7. TRAIL ADDITION FOR ALTERNATIVE B



Reserve Roads

Reserve management of roads would be the same as in alternative A. In addition, the Reserve would develop a turnaround area adjacent to USFS-managed land at the north end of Logger Springs Road. Logger Springs Road is a one-lane, unpaved, access road into the Sawtooth National Forest from City of Rocks Road. It provides access to expansive views because of its high elevation gain and sheer drop-offs along parts of the road. Providing a designated turnaround would protect adjacent resources and allow visitors to safely reverse direction without having to back down the road or continue into the national forest to turn around.

Partnerships

IDPR Visitor and Administrative Facilities

Visitor Center

In alternative B, the large visitor center envisioned in the Reserve's 1996 comprehensive management plan would not be built. Instead, emphasis would be on visitor preplanning through the internet and community outreach, as well as by using self-guided exhibits and interpretive materials within the Reserve.

Visitor contact for the Reserve and Castle Rocks State Park would continue to occur at the administrative site in Almo at the existing visitor center/ headquarters building. Construction of a new visitor contact station on a portion of the same state-owned property would be considered in order to provide adequate space for necessary functions. The facilities would then be reconfigured to provide additional space and a better separation of uses, keeping space for existing functions, including a small retail and book sales area, a small area for viewing the Reserve film, a staffed visitor information desk, restrooms, and limited exhibits.

As agreed in the "2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)," development of facilities outside the Reserve would continue to be the responsibility of the Idaho Department of Parks and Recreation. In this alternative, should the Idaho Department of Parks and Recreation

choose to pursue remodeling, it would fund all construction associated with the project. The National Park Service would continue operations and maintenance support through the existing cooperative agreement. This could include design consultation, participating in funding exhibits and interpretation, or other assistance if requested by the Idaho Department of Parks and Recreation.

In the long term, if lands and funds become available, the Idaho Department of Parks and Recreation could consider building a visitor center at the R&PP lease as called for by the 2006 *Castle Rocks State Park Master Plan* and the Reserve's 1996 comprehensive management plan (see description in alternative A).

In addition, the development of unstaffed kiosks at Bath Rock and at Smoky Mountain Campground would provide additional visitor information and orientation to those visitors who do not stop at the visitor center.

Administration

(See "Reserve Management and Operations" in the "Actions Common to All Alternatives" section.)

Maintenance

(See "Reserve Management and Operations" in the "Actions Common to All Alternatives" section.)

Employee Housing

Housing for employees would be the same as in alternative A.

Smoky Mountain Campground

In alternative B, the National Park Service would partner with the Idaho Department of Parks and Recreation to develop a primitive group camping area for approximately 50–70 people for social camping, including tent campsites on the existing BLM R&PP lease in cooperation with the Bureau of Land Management. This additional camping area would provide needed camping opportunities adjacent to the Reserve during the peak season. The road to the group camping area would probably be gravel and unpaved. Infrastructure would be limited to two or three additional vault toilets, a communal

parking area, and a source of water. Because there would be less infrastructure, it is likely that camping would be made available for a lower fee than the original sites at Smoky Mountain Campground. Providing a less expensive camping option may reduce the amount of dispersed camping on BLM managed lands adjacent to the existing campground.

The exact location of the second campground loop would be determined based on analysis of potential impacts on resources. In addition, siting of the primitive group camp would be designed to minimize visual impacts. Tree cover would be maintained or added to screen campsites, where possible.

As proposed in the Reserve's 1996 comprehensive management plan, the National Park Service would partner with the Idaho Department of Parks and Recreation to construct an amphitheater for evening programs and interpretive activities. The amphitheater would be located at Smoky Mountain Campground in an area without sensitive resources. The amphitheater would have seating capacity for approximately 70 people and would be designed to comply with the Americans with Disabilities Act / Architectural Barriers Act (ADA/ABA) accessibility standards. A simple design could consist of benches surrounding a fire ring for storytelling, with minimal lighting to protect night sky viewing. The amphitheater could also include the capability for multimedia presentations and be available to the local community for compatible programming.

The National Park Service would also partner with the Idaho Department of Parks and Recreation to add an unstaffed information kiosk at the campground entrance to provide interpretive information and materials for self-directed visitor orientation.

As noted elsewhere, although the National Park Service could not help fund construction of state-owned facilities, it would continue to provide operations and maintenance support and could provide design consultation or assistance if requested by the Idaho Department of Parks and Recreation through the existing cooperative agreement.

Cassia County Road Network

In alternative B, the National Park Service would consider opportunities for ownership or management of the county roads through the Reserve to provide maintenance assistance to Cassia County and to ensure county road maintenance practices contribute to NPS road standards and character. The standards would include maintaining these roads to ensure a park-like feel and a safe, scenic driving experience using the historic road alignment to the extent possible. It would also include keeping the roads throughout the Reserve unpaved. In addition, the National Park Service and the Idaho Department of Parks and Recreation would promote opportunities to improve engineering, erosion control, and dust abatement.

The National Park Service and the Idaho Department of Parks and Recreation would work with Cassia County to lower speed limits along county roads within the Reserve to improve visitor experience and safety. Many visitors walk alongside the county road between campsites, on the way to trailheads, or while recreating.

The Reserve would partner with the county to better control water flow off county roads, specifically to encourage water to disperse rather than concentrate, thereby reducing the potential for gullying and erosion.

Other Partnerships

The Reserve would develop partnerships with adjacent land managers and private landowners to extend trail connections and provide a continuum of recreational experiences. These could include trails that connect to the USFS- and BLM-managed lands and Castle Rocks State Park.

Reserve staff would partner with schools to develop outreach and curriculum materials to promote interest in and understanding of the Reserve's cultural and natural resources.

Environmental Sustainability

As in alternative A, the Reserve would pursue implementation of energy-efficient actions outlined in its climate action plan and would follow sustainability guidelines set forth in the NPS Green Parks Plan. Reserve staff would maximize energy efficiency, conservation, and sustainability associated with any new development. Overall, there would be lower facility-related energy and carbon footprint costs associated with the minimal development of new facilities in alternative B.

Reserve Boundary

There would be no change to the existing Reserve boundary.

At the southern boundary of the Reserve, the National Park Service would encourage Cassia County and private landowners to protect the California National Historic Trail corridor from the southwest corner of the Reserve to Granite Pass, which was the next stop for the pioneers traveling on the California Trail from the Circle Creek encampment. Although no boundary revision is proposed for this section of the California Trail corridor, opportunities to commemorate and protect this outstanding section of the California Trail could be explored. Landscape protection at the southwest corner of the Reserve would be accomplished, if possible, through voluntary granting and sale of California National Historic Trail easements by willing sellers to the Bureau of Land Management, the National Park Service, or a private land trust.

Operations

Staffing

Alternative B would propose 3 additional full-time equivalent positions, for a total of 10 FTEs. New positions would include an additional interpretive specialist, one visitor protection specialist (law enforcement ranger), and an additional maintenance worker. Due to the existing budget climate for both the National Park Service and the Idaho Department of Parks and Recreation, it is assumed that the National Park Service would provide full funding for all

The percentage of funding for each position supplied by the National Park Service and the Idaho Department of Parks and Recreation is found in the following table. Table 7 does not include seasonal staffing, which would vary depending on needs and funding allocations.

TABLE 7. ALTERNATIVE B, STAFFING

POSITION	IDPR	NPS
Park Manager III	100%	
Assistant Park Manager		100%
Maintenance Foreman	75%	25%
Climbing Ranger	25%	75%
Park Ranger – Visitor Services		100%
Park Ranger – Natural Resources	50%	50%
Park Ranger – Cultural Resources		100%

*FTE percentages between IDPR and NPS are stated in the "2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)."

Estimated Costs

The implementation of the approved plan, no matter which alternative is selected, would depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan would be forthcoming. Full implementation of the plan could be many years in the future.

Annual Operating Costs

Annual operating costs are the total costs per year for maintenance and operations associated with each alternative, including utilities, supplies, staff salaries and benefits, leasing, and other materials. Cost and staffing estimates assume that the alternative is fully implemented as described in the narrative.

FTE salaries and benefits are included in the annual operating costs.

One-time Costs

One-time facility costs (table 8) include costs for the design, construction, rehabilitation, and restoration of facilities including visitor facilities, roads, parking, and visitor facilities. The one-

three new positions.

time costs for alternative B would include costs such as rehabilitating the existing visitor center, constructing a group camping area and amphitheater at Smoky Mountain Campground, developing an equestrian staging area, and reconfiguring the Reserve's campsites.

One-time nonfacility costs include actions for the preservation of cultural or natural resources not related to facilities, the development of visitor use tools not related to facilities, and other park management activities that would require substantial funding above park annual operating costs such as updating management plans.

Program support costs include technology, grants, development of plans, or other program support.

These costs are in 2012 dollars and are based on general "Class C" estimates for site development and construction. (According to the 2011 NPS Cost Estimating Requirements Handbook, Class C construction cost estimates are used for alternatives and are referred to as conceptual estimates by the design and construction industry. These estimates are generally prepared without a fully defined scope of work. They are general in nature and representative of a broad-based vision rather than focused on specific details.) Prior to submitting funding requests for the design and construction phases, "Class B" estimates are required, based on detailed site and facility designs.

Deferred Maintenance Offset

Deferred maintenance is maintenance and repair activities that were not performed when they should have been or were scheduled and which, therefore, are put off or delayed for a future period. Maintenance and repairs are activities directed toward keeping fixed assets in an acceptable condition. Total costs for deferred maintenance offset in alternative A are listed in table 8. Deferred maintenance costs would "offset" the total one-time costs. For example, the total one-time costs are \$3,573,500, which would be reduced to \$3,550,537 after

considering the deferred maintenance offset of \$23,000.

Prioritizing Actions in Alternative B

Actions in alternative B would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy, and purpose) or address promises made in the past to the public such as development of an equestrian staging area.

Low priority actions would address visitor opportunities and experiences, such as enhanced facilities, and would depend on sustained funding.

Cost estimates for alternative B are identified in table 9.

TABLE 8. SUMMARY OF ONE-TIME COST FOR ALTERNATIVE B, PREFERRED ALTERNATIVE

LOCATION	PROJECT	PROGRAM SUPPORT	FACILITY REHABILITATION/ REPLACEMENT	RESOURCE MANAGEMENT	NEW CONSTRUCTION	PRIORITY*	DEFERRED MAINTENANCE OFFSET
Alternative B							
Reservewide	Update the fire management plan			\$35,000		1	
	Prepare soundscapes management plan			\$34,000		2	
	Conduct a wildlife inventory; develop and implement a monitoring plan			\$85,000		2	
	Develop an archeological management plan to manage California Trail ruts			\$45,000		1	
	Monitor and develop a treatment plan for features within the California Trail corridor	\$60,000				1	
	Develop a long-range interpretive plan	\$40,000				1	
	Develop a trails management plan to consider modifications for trail improvement	\$50,000				2	
	Trail from California Trail to Tea Kettle: 11,853 feet				\$60,000	2	
	Construct additional unstaffed kiosks at Reserve entrances and Reserve campground				\$80,000	2	
	Develop a turnaround area at the north end of Logger Springs Road				\$5,000	1	
	Reconfigure camping in the Reserve to address safety and resource issues		\$1,050,000			1	
	Outreach primarily through technology: podcasts, equipment, software, photographs, video, and other improvements	\$75,000				1	
DM Subtotal	Trails						-\$23,000
Research Natural Area	Fencing needs for RNA boundary changes; refine the boundary of the Research Natural Area to conform to landscape features. Includes addition of three small areas of 485 acres			\$30,000		1	
DM Subtotal	Bread Loaves						
	Develop an additional equestrian staging area in the Reserve near the Bread Loaves intersection				\$120,000	1	

LOCATION	PROJECT	PROGRAM SUPPORT	FACILITY REHABILITATION/ REPLACEMENT	RESOURCE MANAGEMENT	NEW CONSTRUCTION	PRIORITY*	DEFERRED MAINTENANCE OFFSET
DM Subtotal							
Smoky Mountain Campground	Develop primitive group camp sites for 50-70 people		\$990,000			2	
	Partner with IDPR to construct an amphitheater at campground for ranger programs				\$75,000	1	
	Add an unstaffed information kiosk				\$20,000	2	
DM Subtotal							
Administrative Complex	Reconfigure existing administration building		\$690,000++			2	
	Construct new visitor information kiosk				\$20,000	2	
DM Subtotal							
Total Cost by Categories		\$225,000	\$2,730,000	\$229,000	\$380,000		-\$23,000
Total Priority 1 Costs	\$1,535,000						
Total Priority 2 Costs	\$2,029,000						
Total Existing Project Costs	\$43,500						
Total One-Time Improvement Cost of Alternative**	\$3,607,500						
Deferred Maintenance Offset	\$23,000						

*Priority 1 projects include projects that emphasize resource protection, threats, and visitor safety. Priority 2 projects include all other projects important to the full implementation of the alternative, including those that address visitor opportunities and experiences such as enhanced facilities as funding allows and could be sustained. Costs are in 2012 dollars.

**Total Capital Cost includes total Priority 1 and Priority 2 costs but does not include a reduction for Deferred Maintenance Offset.

++IDPR costs.

TABLE 9. ALTERNATIVE B, SUMMARY OF COSTS*

Category	Costs
Annual Operating Costs**	
Existing Base Funding	\$698,647
New Personnel Costs	\$140,000
Total Annual Operating Costs	\$838,647
Personnel	FTE
Permanent	10 (+3)
One-Time Costs	
Total Existing Project Costs	\$43,500
One-Time Nonfacility Costs	
Program Support	\$225,000
Priority 1***	\$175,000
Priority 2	\$50,000
Resource Management	\$229,000
Priority 1	\$110,000
Priority 2	\$119,000
Total One-Time Nonfacility Cost	\$454,000
One-Time Facility Costs	
New Construction	\$380,000
Priority 1	\$200,000
Priority 2	\$180,000
Facility Rehabilitation	\$2,730,000**
Priority 1	\$1,050,000
Priority 2	\$1,680,000
Total One-Time Facility Cost	\$3,110,000
Total Priority 1 Costs	\$1,535,000
Total Priority 2 Costs	\$2,029,000
Total One-Time Costs	\$3,607,500
Deferred Maintenance Offset	\$23,000

*Figures are rounded.

**Does not include funding for Castle Rocks State Park, although some costs support both the Reserve and the state park, for example, some staff and the visitor center.

*** Actions in alternative B would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy and purpose) or address promises made in the past to the public such as development of an equestrian staging area. Low priority actions address visitor opportunities and experiences such as enhanced facilities as funding allows and could be sustained.

**Includes \$690,000 of IDPR costs.

ALTERNATIVE C: A STAGE FOR STEWARDSHIP

General Description

Alternative C would protect resources by encouraging research activities; enhancing educational and interpretive opportunities; and forging partnerships with educational institutions, agencies, organizations, private landowners, and park visitors. Visitors would be provided with a variety of opportunities to learn about and experience the California Trail history and the many natural wonders within the Reserve. The Reserve would be recognized as part of a much larger area of protected lands, one that provides a stage for fostering improved understanding of resources across the broader landscape. Several major initiatives—America’s Great Outdoors: A Promise to Future Generations (2011); the National Parks Second Century Commission Report, Advancing the National Park Idea (2009); and The Future of America’s National Parks (the Centennial Report 2007)—place value on protecting regional landscapes. Regional landscape conservation efforts, such as protecting natural and cultural landscapes within the context of the broader ecosystems they are part of, could occur through actions proposed in alternative C.

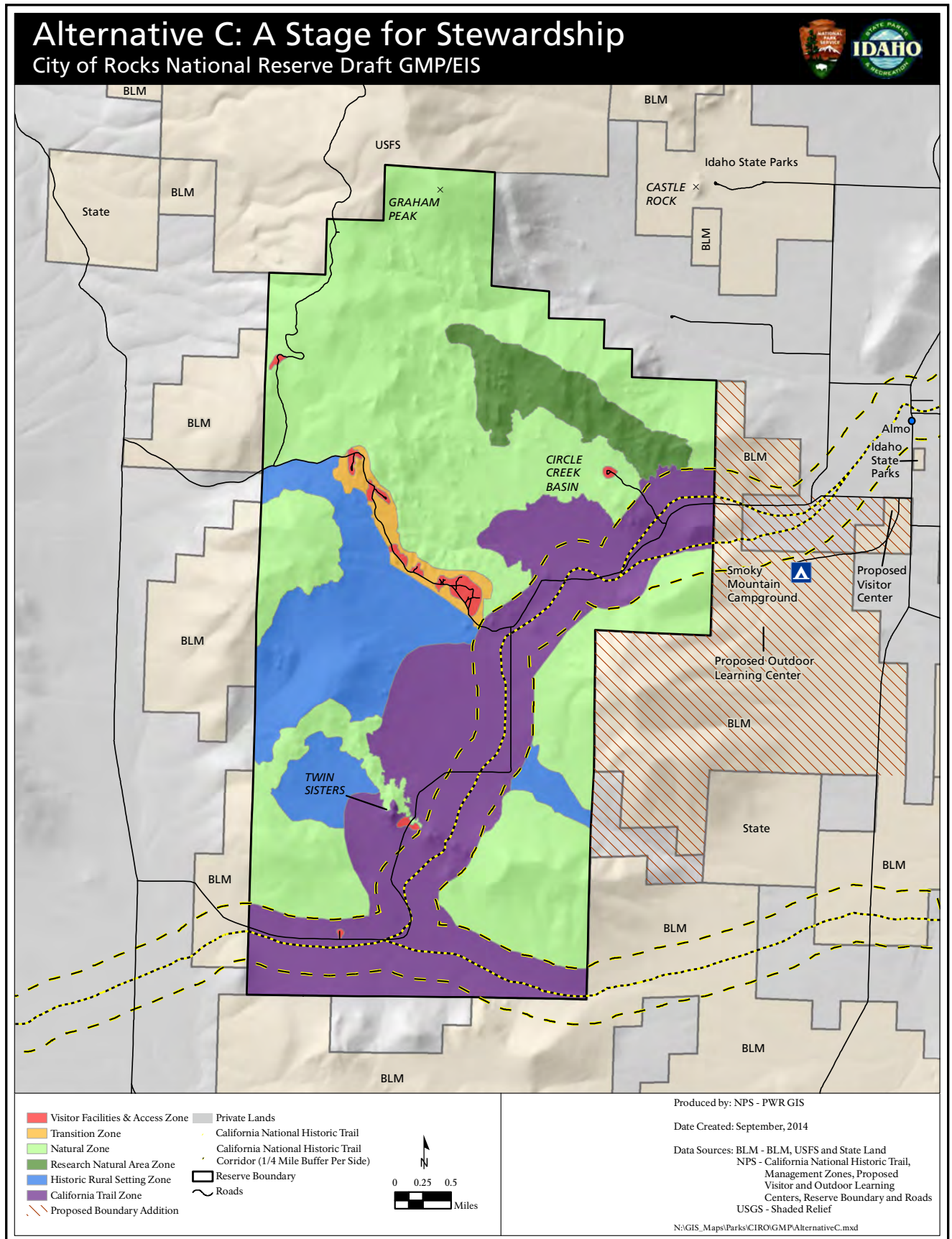
Management Zones Applied to Alternative C

The management zones for alternative C are taken from “Table 3. Management Zones.” The specific configuration of the management zones is provided in “Figure 8. Alternative C: A Stage for Stewardship.”

In alternative C, the Visitor Facilities and Access Zone would be applied in the same area as in alternative B, maintaining a small footprint for developed areas.

The Transition Zone would be applied to the same areas as alternative B in the same configuration, except for the extreme east boundary, which would not extend all the way to the California Trail Zone but would instead connect with the Natural Zone.

FIGURE 8. ALTERNATIVE C: A STAGE FOR STEWARDSHIP



In alternative C, the Natural Zone covers the largest area to express the concept of stewardship and emphasis on promoting natural processes. This zone would include the higher rocky elevation lands to the north, east, and west of the Reserve and would also include more pinyon forested lands, former burned areas undergoing natural rejuvenation, and Indian Grove with its varying vegetation. A finger of the Natural Zone would extend north of Twin Sisters to allow for technical climbing in the area, but not on the Twin Sisters formation, itself.

To protect natural processes and habitat and to facilitate research and education, the Research Natural Area Zone in alternative C would be the largest Research Natural Area Zone in the alternatives. This zone would be expanded southeast toward the Reserve boundary to capture a greater elevational range of old-growth pinyon-juniper forest and rock outcrops.

The Historic Rural Setting Zone would be applied to the lower elevation areas exhibiting evidence of ranching operations. This zone would include some areas viewed by emigrants traveling along the California Trail.

The California Trail Zone is largest in alternative C and would include more of the California Trail resources: the one-half mile California Trail corridor and southern offshoot; the three basins that were used by emigrants for camping and extracting resources during the California Trail era; and Pinnacle Pass, register rocks, Twin Sisters, and the Salt Lake Alternate Trail.

Natural Resource Management

Alternative C would enable long-term stewardship and preservation of natural resources within the context of a functioning ecosystem that is part of the broader landscape, including ecosystem processes, air quality, soundscapes, dark night skies, water resources, vegetation, and wildlife. Restoring connectivity between ecosystems and reducing fragmentation would allow ecosystems to adjust and adapt, thus increasing their resilience to fire, drought, invasive species, wildlife, changing water supplies, and impacts associated with climate

change. The Reserve is well-suited to lead this landscape-scale integration and protection in the Basin and Range physiographic province.

Natural resource management would be the same as in alternative A, plus Reserve staff would increase public understanding of resources through the application and dissemination of research. This includes recognizing the significance of protecting biological diversity within the Reserve and the role it plays in the ecological health of the entire region. Emphasis would be placed on management actions that promote biodiversity within the Reserve. Working with partners, the Reserve would advocate for natural processes on lands throughout and adjacent to the Reserve, regardless of ownership.

Reserve staff would continue to work with the UCBN I&M program and with educational institutions, agencies, organizations, private landowners, tribes, and private partners to promote ecosystem processes within the Reserve and on surrounding public lands. A resource stewardship strategy would be produced to guide natural and cultural resource management as part of alternative C.

Climate and Air Quality

Actions associated with air quality management would be the same as alternative B.

Alternative C would emphasize enhanced research opportunities on landscape-scale natural resource topics, including climate change. The expanded Research Natural Area would provide and protect additional flora and fauna species for research, including the opportunity for paired studies to compare and contrast species' adaptation to changing natural conditions. By establishing active partnerships, this alternative would promote climate change research and enhance public understanding by sharing the results.

Contingency plans would be developed to address instances of high-intensity fire or increased erosion, each of which could increase as the climate changes.

Facilities and transportation options would be designed with sustainability and a low carbon footprint. The Reserve would encourage development of a privately operated shuttle system linking Castle Rocks State Park to the Reserve. Rather than building new housing units, the Reserve would work with partners to encourage nearby communities to provide housing for employees, researchers, and visiting scholars.

Water Quality

(See “Natural Resources” in the “Actions Common to All Alternatives” section.)

Geology and Soils

Reserve staff would work with partners to conduct an inventory of pinnacles and sensitive rock features within the national natural landmark.

Management of soils and erosion would be the same as in alternative B.

Vegetation and Fire

In alternative C, native plant species within the Reserve—such as aspen and Simpson’s hedgehog cacti in high-elevation areas—would continue to be protected. The Reserve would work with partners, neighbors, and volunteers to implement the invasive plant management plan, refining park priority areas for control of nonnative invasive plants. The Reserve would also develop a vegetation management plan.

Fire management would be the same as in alternative B.

Wildlife

Wildlife management actions would be the same as in alternative B. In addition, the Reserve would seek partnerships with other agencies to better understand how wildlife use the Reserve and surrounding lands. The National Park Service would seek funding to address monitoring questions related to the status and trends of species composition for birds, mammals, and other relevant wildlife. Funding would be sought to research topics such as the status and trends of Idaho Sensitive

Species, threatened and endangered species, and extirpated species, and to determine which actions the Reserve should undertake so as to address study results.

Soundscapes and Lightscapes

Soundscape and lightscape management would be the same as in alternative B.

Cultural Resource Management

Under alternative C, cultural resources preservation and protection would continue to be a high priority for management of the Reserve. The Reserve would continue to promote and ensure long-term stewardship and preservation through active management and increase the understanding of cultural resources through the application and dissemination of research. Research topics could include the Kelton-Boise stage station, ethnography, oral histories of ranching families, and an administrative history of the area.

Reserve staff would continue to conduct research and resource management projects, inventories, and monitoring and work with landowners within the Reserve on non-NPS lands as opportunities arise. A resource stewardship strategy would be produced to guide natural and cultural resource management. As one of the highest priorities, the Reserve would continue to preserve California Trail-era resources associated with the City of Rocks National Historic Landmark in accordance with *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*. Alternative C would include an additional 1.1 miles of the California National Historic Trail through a proposed boundary expansion.

The Reserve would continue to work closely with the Shoshone-Bannock Tribes to continue their traditional activities within the Reserve, including gathering of pinyon nuts.

Archeology

Archeological management would be the same as in alternative A, plus Reserve staff would encourage partners to participate in the identification, documentation, and research of

archeological resources within the Reserve. The Reserve would conduct hands-on investigation and research archeological resources in collaboration with partners, who could include educational institutions, agencies, organizations, tribes, and private landowners. Reserve staff would promote collaboration with partners and universities to improve understanding of early human use and adaptation in the region.

As in alternative B, Reserve staff would develop an archeological management plan to manage California Trail ruts and support the development of an archeological district to ensure appropriate stewardship of prehistoric sites and isolated artifacts by delineating zones that require a higher degree of management sensitivity.

Cultural Landscapes

Treatment of cultural landscapes would be the same as in alternative B. In addition, Reserve staff would work with partners and the State Historic Preservation Office to research the potential for establishing a historic district associated with the homesteading era throughout the larger valley landscape. This would connect the story and resources associated with homesteading within the Reserve to the larger story of homesteading in the region.

Special Designations

Hunting and Trapping

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Grazing

In alternative C, grazing on public lands could be voluntarily eliminated over time within the life span of the GMP. Encouraging the elimination of grazing in alternative C would be consistent with the concept of stewardship and the emphasis on promoting natural processes and biodiversity in this alternative.

When the Reserve was created, the National Park Service permitted the continuation

of grazing based on the regional solicitor’s opinion that livestock grazing could be viewed as maintaining the historic scene. Over the years, the National Park Service has evaluated the damage to natural resources that grazing has caused, in particular impacts on wetland and riparian areas and trampling of vegetation resulting in establishment of nonnative plant species. Alternative C addresses the potential adverse impacts on environmental values and on natural and cultural resources by voluntarily phasing out grazing over the lifetime of this plan.

To facilitate removal of grazing, a voluntary federal grazing permit buyout program would be initiated (similar to programs that have accomplished this elsewhere on federal lands [see sidebar]). This buyout would allow permittees to exchange their permits for compensation from conservation organizations. The benefits would include: permittees receiving compensation by relinquishing their permit; saving money for taxpayers by decreasing costs associated with subsidizing the federal livestock program for these grazing allotments; reducing related management costs by the National Park Service and the Idaho Department of Parks and Recreation; removing adverse impacts on natural and cultural resources, such as the California National Historic Trail; and protecting and enhancing the Research Natural Area, riparian, and wetland areas. Management zoning would continue to guide grazing until grazing is voluntarily eliminated. At this point, livestock grazing and trailing would not apply to the management zones.

GRAZING PERMIT RETIREMENT IN GREAT BASIN NATIONAL PARK

Great Basin National Park was the setting for a voluntary federal grazing permit buyout program. In 1996, under the leadership of Senator Harry Reid (D-NV), and with the support of the entire Nevada delegation (two Republicans, two Democrats), Congress amended the law that established Great Basin National Park to allow permittees to donate their grazing permits for allotments inside the park back to the National Park Service (16 U.S.C. § 410mm-1(f)(2)). In 1999, three permittees agreed to relinquish their permits for cattle grazing in the park and part of the adjacent Mt. Moriah Wilderness Area in exchange for compensation from a host of conservation organizations, an effort led by The Conservation Fund. Permits were retired on NPS and related USFS and BLM-managed lands. The buyout program was supported by the Nevada Cattlemen's Association, the Nevada Commission on Tourism, and the U.S. Fish and Wildlife Service. A total of 2,429 AUM on 101,000 acres were retired for approximately \$2.20 per acre or \$90.61 per AUM.

Later, the National Public Lands Grazing Campaign used the Great Basin example, among others, as a model for a proposed national voluntary federal grazing permit buyout program. This proposed permit buyout legislation, if enacted, would compensate private landowners grazing on federal public lands at approximately \$175 per AUM.

The grazing management plan would be updated to reflect these changes. Because implementation of the grazing management plan recommendations may affect wetlands within the Reserve, if implemented these actions would need to be addressed in a future NPS wetlands statement of findings. This would ensure that the update to the grazing management plan complies with Executive Order 11990, "Protection of Wetlands."

Research Natural Area

In alternative C, Reserve management would refine the boundary of the Research Natural Area to conform to landscape features to increase management efficiency and to encompass a greater variety of high-quality terrain features. No grazing allotments would be affected. This boundary refinement would maintain grazing where it is currently occurring and add three small areas in the south and a high-elevation valley in the northwest to the Research Natural Area.

The Research Natural Area would also be expanded to the southeast toward the Reserve boundary to encompass a greater elevational range of old-growth pinyon-juniper forest and rock outcrops. The revised acreage would total 693 acres. Expanding the RNA boundary would include additional habitat for some Idaho Sensitive Species, including pinyon mouse and cliff chipmunk. The revised boundary would also offer more opportunities for researchers to conduct studies in an area where few human impacts are present.

As in the other alternatives, hunting and trapping would continue to be excluded from the Research Natural Area according to NPS Natural Resource Management Reference Manual 77. As in the other alternatives, there would be modifications to the existing allotment along the western boundary of the Research Natural Area to remove the unintentional overlapping grazing allotment from the Research Natural Area. The Reserve would work with the permittee to remove this overlap.

Natural Historic Landmark

(See "Special Uses and Designations" in the "Actions Common to All Alternatives" section and "Table 3. Management Zones.")

National Natural Landmark

(See "Special Uses and Designations" in the "Actions Common to All Alternatives" section and "Table 3. Management Zones.")

Section 36

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Interpretation and Education

Interpretation and education would be the same as in alternative A. In addition, the Reserve would be used as a “classroom” to study the Northern Basin and Range ecosystem. More interpretive and educational programs would be provided primarily through the proposed visitor center and the outdoor learning center, including guided walks and talks, and exposure to the Reserve’s natural and cultural environment. There would be opportunities for both structured and unstructured activities including self-guided and group discovery activities.

Information provided by researchers would inform and educate visitors in a variety of ways through articles, presentations, classes, lectures, field trips, and on-site field work. Researchers working in the area would be encouraged to provide summaries of their research at the visitor center and during evening talks at the visitor center.

Interpretation and education could also be provided by other non-NPS entities and partners, such as educational institutions or members of the Shoshone-Bannock Tribes.

Visitors would participate in stewardship activities that contribute to the preservation of nationally significant resources, such as geology and the California National Historic Trail.

Interpretive Programs

As in alternative A, Reserve staff would continue to conduct a variety of interpretive programs and special events and provide educational materials and activities for visitors. In addition, interpretive programs would focus on immersion, hands-on experiential learning, and environmental stewardship.

The Reserve would also improve dissemination of natural, cultural, and archeological research findings through various on-site and outreach

programs, located at the visitor center, the outdoor learning center, and in local schools. The Reserve would work to integrate learning and research through living labs, institutes, and field schools, and would partner with federal, state, tribal, and private partners, such as universities and institutes. Interpretive programs would be designed to educate visitors about the Reserve’s national significance. These educational programs would be designed to transfer knowledge and engender stewardship in future generations.

The primary purpose of the Research Natural Area is research and the area would be managed to ensure minimal interference for research activities. If appropriate, interpretation would primarily be provided off-site, except in cases where well-supervised, on-site interpretation of ongoing research is possible.

As in alternative B, Reserve staff would work with the NPS Pacific West Region and Harpers Ferry Center staff to develop a long-range interpretive plan based on the interpretive themes developed in the City of Rocks National Reserve Foundation Document. (See “Chapter 2: Foundation for Planning and Management.”)

Youth

Education and interpretation for youth would be the same as in alternative A. In addition, the Reserve would provide youth-focused classes, field trips, and programs on natural and cultural resources at the outdoor learning center on Smoky Mountain. Reserve staff would encourage researchers to tailor programs about their research to a variety of age groups.

Visitor Experience

In alternative C, the Reserve would engage visitors in research, learning, and stewardship opportunities through new research, science, and education programs and facilities. This would be accomplished through new opportunities for learning and at facilities such as the outdoor learning center and the replacement visitor center.

Recreation Opportunities

Recreational opportunities would be the same as in alternative A.

Trails

Actions associated with trails would be the same as in alternative B, except that the Reserve would work with the Bureau of Land Management to establish a formal hiking trail to the summit of Smoky Mountain from the Smoky Mountain Campground (“Figure 9. Trail Additions for Alternatives C and D”).

Climbing

Climbing management would be the same as in alternative B.

Equestrian Staging Area

Development of the equestrian staging area would be the same as in alternative B.

Commercial Visitor Services

Commercial visitor services would be the same as alternative A. In addition, the Reserve would encourage the development of a privately operated shuttle service by a private entity to link the Reserve and Castle Rocks State Park with potential stops at Castle Rocks Lodge, the visitor center, Bath Rock, Bread Loaves, and Circle Creek Overlook.

NPS Visitor and Administrative Facilities

Visitor Center

In alternative C, the Reserve would develop a smaller, more cost-effective version of the visitor center approved in the Reserve’s 1996 comprehensive management plan and the 2006 *Castle Rocks State Park Master Plan*. The National Park Service would partner with the Idaho Department of Parks and Recreation to develop a visitor center within the expanded boundary close to the Almo entrance to the Reserve. The visitor center could be located on the existing R&PP lease with the Bureau of Land Management and approved in the Reserve’s comprehensive management plan. Since Castle Rocks State Park was developed subsequent to

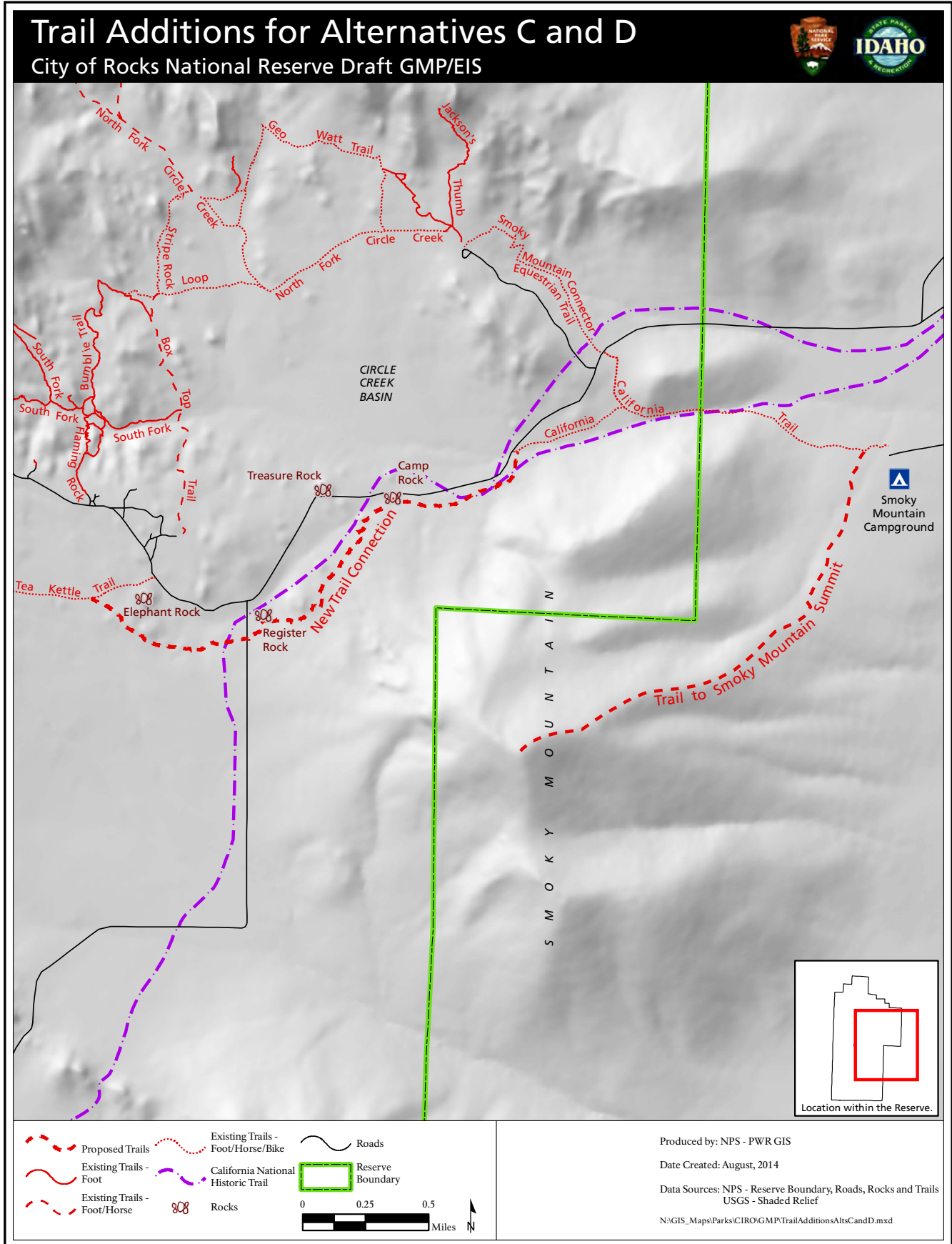
the approved 1996 Reserve’s comprehensive management plan, this visitor center would serve as a facility for both the Reserve and Castle Rocks State Park. The rationale for the visitor center is based on the isolation of the Reserve from other interpretive facilities and the need to provide more formal exhibits and programs to visitors for both the Reserve and Castle Rocks State Park.

Based on the “2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO),” all new facilities inside the Reserve boundaries will be sited and developed in accordance with NPS design guidelines. Reserve planning and development will conform to applicable guidelines, policies, and laws to ensure that natural and cultural resource values are protected. The National Park Service will provide technical assistance, plan designs, standards, reviews, and on-site expertise on development projects inside of the Reserve boundaries as stated and properly funded in the project documents.

At approximately 2,600 square feet, this visitor center would be smaller than the visitor center proposed in either alternative A (the long-term proposal) or alternative D. This smaller footprint would improve cost savings and energy efficiency. The visitor center would include a lobby with a staffed information desk, small retail sales area, interpretive exhibits, research office, interpretive staff offices, a combined multipurpose room/theater with movable chairs for up to 40 people (allowing for flexibility in use and function), and space to include interpretive media, restrooms, and adjacent parking. Outdoor exhibits could be provided and would be helpful in orienting visitors when the visitor center is closed or unstaffed.

The National Park Service, in cooperation with the Idaho Department of Parks and Recreation and the Idaho Department of Transportation, would seek a variety of funding sources to support the design and development of the visitor center. This could include use of transportation enhancement funds, grants from private foundations, and other sources in addition to traditional funding sources.

FIGURE 9. TRAIL ADDITIONS FOR ALTERNATIVES C AND D



Reserve staff, as well as volunteers, would work at the information desk. The visitor center would be built using local materials from the immediate region or modern materials that blend with local colors and landscapes and incorporate sustainable design principles to reduce heating and cooling costs. The visitor center would feature native plant landscaping.

Outdoor Learning Center

In alternative C, an outdoor learning center would be developed to immerse students and visitors in direct contact with nature through outdoor experiences emphasizing exploration, reflection, and stewardship. The learning center would connect people, nature, and community through science, art, and the hands-on study of natural and cultural history within the larger Northern Basin and Range ecoregion.

The outdoor learning center could be located about one-half mile south of Smoky Mountain Campground or in another suitable area. If Smoky Mountain was used, it is intended that the outdoor learning center would be accessed along the existing road past the campground and would be constructed in a formerly disturbed (woodcutting) area.

Formal development of facilities and services would be limited and minimal. The outdoor learning center could include a group of approximately five to six yurts or temporary outdoor shelters that would provide accommodations for approximately 30 people. The shelters would be used by students or family groups participating in activities associated with the learning center but could also be used by visiting researchers. To accommodate groups, a covered shelter or well-designed pavilion would be developed to allow approximately 30 people to meet during inclement weather. Facilities would include electricity, data connection, and possibly water. To ensure protection of the night sky, no outdoor lighting would be provided. An existing road with dispersed parking is already on-site and could serve the future outdoor learning center.

If the outdoor learning center is located within the expanded boundary, the National Park Service would be authorized to expend funds for the construction of the outdoor learning center and amenities. Funding requests would compete through the normal procedures with all other NPS funding requests. (If the outdoor learning center is located outside the Reserve boundary NPS policy would not allow NPS funds to be used for construction.)

Smoky Mountain Campground

In alternative C, Smoky Mountain Campground would be located within the expanded Reserve boundary. A second camping loop would be added to the existing campground loop, with up to 62 additional campsites. This additional loop would provide needed campsites within the Reserve during the peak season. The second campground loop would add to the standard amenities that currently exist in the campground and could also include social camping opportunities, where camping areas for multiple tents and picnic tables would be made available. Additional facilities would include two or three additional vault toilets and could include showers if a sufficient water supply is available.

The exact location of the second campground loop would be determined based on analysis of potential impacts on resources. The second campground loop would be designed to minimize visual impacts. Tree cover would be maintained or added to screen campsites, where possible.

As in alternative B, an amphitheater at Smoky Mountain Campground to seat approximately 70 people would be constructed to provide for evening interpretive and research programs. The design would be simple and would meet ADA/ABA accessibility standards. The design could consist of benches surrounding a fire ring for storytelling with minimal lighting in order to protect night sky viewing. The amphitheater could have the capability for multimedia presentations and be made available to the local community, depending on use for the Reserve. This proposal for a second campground loop and amphitheater was also

approved in the Reserve’s 1996 comprehensive management plan.

Partnering or shared funding arrangements would be sought for construction of the amphitheater, additional campground loop, and amenities.

Reserve Campsites

Reconfiguration of the Reserve’s campsites would be the same as alternative B (see “Appendix D: Rim Development Concept Plan for City of Rocks National Reserve”).

Visitor Facilities

In alternative C, Reserve staff would develop waysides and exhibits based on interpretive themes and various topics to promote education, research, and protection of nationally significant resources.

Reserve Roads

Reserve management of roads, including the development of a turnaround area at the end of Logger Springs Road, would be the same as in alternative B.

Partnerships

IDPR Visitor and Administrative Facilities

Administration

(See “Reserve Management and Operations” in the “Actions Common to All Alternatives” section.)

Maintenance

(See “Reserve Management and Operations” in the “Actions Common to All Alternatives” section.)

Employee Housing

In alternative C, the Idaho Department of Parks and Recreation would continue to provide limited employee housing at the Castle Rocks State Park Administrative Unit. In addition, the Reserve would work with partners to encourage nearby communities in southern Cassia County to provide housing for researchers and visiting scholars.

Visitor Facilities

Alternative C would call for development of additional waysides and exhibits based on interpretive themes and various topics to promote education, research, and protection of nationally significant resources.

Cassia County Road Network

Management recommendations for county-owned roads would be the same as in alternative B.

Other Partnerships

Reserve partners include universities, federal and state agencies, nonprofit organizations, institutes, local landowners, and tribes. The UCBN I&M program and the Cooperative Ecosystem Studies Unit (CESU) would continue to be involved in research. The Reserve would work with agencies to promote research and provide outreach and education programs across the larger landscape. Reserve staff would encourage researchers to present programs for the public at the visitor center. Research would be conducted with partners on relevant topics such as fire, drought, invasive species, wildlife, changing water supplies, climate change, night skies, and soundscapes. Reserve staff would also work with adjacent landowners on resource protection areas of mutual concern.

Environmental Sustainability

The energy efficiency and environmental sustainability strategy of alternative C would incorporate the same actions as in alternative B, with the enhancements discussed below.

Although this alternative includes a replacement visitor center and an outdoor learning center, these facilities would both employ sustainable design techniques to minimize environmental impacts, including carbon footprint. The visitor center would include local materials, energy-efficient design, and sustainable native plant landscaping features. The outdoor learning center would occupy a minimal footprint, provide a dual education and housing function for visiting students, researchers, or others and

would be focused on connecting visitors to their natural, outdoor surroundings rather than on providing a formal indoor space.

In alternative C, development on NPS land would include improvements in energy efficiency and reduction in greenhouse gas emissions for both the building envelope and the mechanical systems supporting the facility. Maximum energy efficiency would be achieved, if possible, using solar thermal and photovoltaic applications, appropriate insulation and glazing strategies, energy-efficient lighting and appliances, and renewable energy technology. Energy-efficient construction projects would be used as an educational opportunity for visitors.

Reserve Boundary

Alternative C would propose a boundary modification to add viewsheds associated with the cultural landscape, portions of the California National Historic Trail, and old-growth pinyon-juniper forest into the Reserve at the east boundary. Smoky Mountain Campground and the outdoor learning center, as well as the land currently leased to the state by the Bureau of Land Management, would be included in this proposed boundary. In addition, two private parcels of land would be included. Congressional legislation would be necessary to authorize a modification of the existing Reserve boundary (see “Figure 8. Alternative C: A Stage for Stewardship”).

If authorized by Congress, the identified federal lands now managed by the Bureau of Land Management would be administratively transferred within the Department of the Interior from the Bureau of Land Management to the National Park Service. Acquisition of full or partial interest by the National Park Service in the two private parcels included in the revised boundary under this alternative would be restricted to an opportunity purchase situation through a voluntary sale of land or scenic easements to the National Park Service. This means that the acquisition would occur only if the landowner was willing to sell, and if adequate funding to support the purchase was available. Cassia County would continue

to retain jurisdiction over all remaining private lands within the Reserve boundary. If the boundary expansion is approved by Congress, the Idaho Department of Parks and Recreation would relinquish its R&PP lease with the Bureau of Land Management because the currently leased land would transfer to NPS management.

This boundary modification would include an addition of 4,247 acres, including 652 acres (15%) in two private parcels and 3,595 acres (85%) managed by the Bureau of Land Management.

Changing from BLM to NPS management would change the management emphasis. The missions of the National Park Service and the Bureau of Land Management are different. Although both agencies provide public services and products, the Bureau of Land Management manages land under the Federal Land Policy and Management Act of 1976, as amended (FLPMA). This act established a multiple-use mandate for the Bureau of Land Management to serve present and future generations. The National Park Service manages land under the Organic Act of 1916. Based on this act, the National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service also cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world. Specifically, the NPS mandate for land management is for preservation while the BLM mandate for land management is based on multiple use. In practice, this means that the National Park Service allows for fewer adverse effects on resources under its management jurisdiction.

Although there are no active mining claims or geothermal leases located on the BLM lands proposed for inclusion within the Reserve boundary, the area is open to mining claims and mineral sales unless these lands are withdrawn from mineral entry through the BLM realty processes (BLM 2012b).

At the southern boundary of the Reserve, the National Park Service would encourage Cassia County and private landowners to protect the California Trail corridor from the southwest corner of the Reserve to Granite Pass, which was the next stop for the pioneers traveling on the California Trail from the Circle Creek encampment. Although no boundary revision is proposed for this section of the California Trail corridor, opportunities to explore other ways to commemorate and protect this outstanding section of the California Trail would be explored. Landscape protection at the southwest corner of the Reserve would be accomplished, if possible, through voluntary sale of California National Historic Trail easements by willing sellers and acquisition by the Bureau of Land Management, the National Park Service, or a nonprofit land trust.

The Reserve would seek to partner with adjacent landowners and agencies to work together on common issues or areas of mutual interest such as nonnative plants, climate change, California National Historic Trail, Smoky Mountain pinyon forest. In particular, the National Park Service could cooperate or partner with the Bureau of Land Management on projects of mutual interest using the recently approved Service First authority. Service First is a partnership authority among four agencies: Bureau of Land Management, U.S. Forest Service, National Park Service, and the U.S. Fish and Wildlife Service (Public Law 112-74).

Modification of the boundary in alternative C would incorporate portions of Idaho's only pinyon pine forest ecosystem into the Reserve. An additional 1.1 miles of the California National Historic Trail would also become part of the Reserve. In addition, the boundary modification would allow the Reserve to coordinate and manage increased recreational use and impacts in areas currently outside its jurisdiction—such as dispersed camping around Smoky Mountain Campground—which could reduce the threat of human-caused wildfires. Bringing the proposed sites of the visitor center, outdoor learning center, and Smoky Mountain Campground into the Reserve boundary would

also make it allowable for the National Park Service to share in the development costs of facilities.

Operations

Staffing

Alternative C would implement the current staffing level of seven FTEs plus five additional full-time FTEs. New positions would include two interpretive specialists, one visitor protection specialist (law enforcement ranger), one maintenance worker, and one education specialist. The second interpretive position would be added to address the increased capacity at the new visitor center and the increased emphasis on partnerships. The education specialist would be needed for the outdoor learning center. Due to the existing budget climate for both the National Park Service and the Idaho Department of Parks and Recreation, it is assumed that the National Park Service would provide full funding for all new positions.

The percentage of funding for each position supplied by the National Park Service and the Idaho Department of Parks and Recreation is represented in the following table under Funding Agency. Table 10 does not include seasonal staffing, which would vary depending on needs and funding allocations.

TABLE 10. ALTERNATIVE C, STAFFING

Position	Funding Agency	FTE (Existing)
Park Manager III	100%	
Assistant Park Manager		100%
Maintenance Foreman	75%	25%
Climbing Ranger	25%	75%
Park Ranger – Visitor Services		100%
Park Ranger – Natural Resources	50%	50%
Park Ranger – Cultural Resources		100%

*FTE percentages between IDPR and NPS are stated in the "2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)."

Estimated Costs

No matter which alternative is selected, the implementation of the approved plan would depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan would be forthcoming. Full implementation of the plan could take many years.

Annual Operating Costs

Annual operating costs are the total costs per year for maintenance and operations associated with each alternative, including utilities, supplies, staff salaries and benefits, leasing, and other materials. Cost and staffing estimates assume that the alternative is fully implemented as described in the narrative.

FTE salaries and benefits are included in the annual operating costs.

One-time Costs

One-time facility costs (table 11) include costs for the design, construction, rehabilitation, and adaptive reuse of facilities, including visitor facilities, roads, parking, and support facilities. The one-time costs for alternative C would include costs associated with the development of the equestrian staging area, reconfiguration of the Reserve campsites, and constructing a replacement visitor center, the outdoor learning center, amphitheater, and the second campground loop (with an emphasis on group tent camping) at Smoky Mountain Campground.

One-time-no-facility costs include actions for the preservation of cultural or natural resources not related to facilities, the development of visitor use tools not related to facilities, and other park management activities that would require substantial funding above annual operating costs. Examples include updating management plans.

Program support costs include technology, grants, development of plans, or other program support.

These costs are in 2012 dollars and are based on general “Class C” estimates for site development and construction. (According to the 2011 NPS Cost Estimating Requirements Handbook, Class C construction cost estimates are used for alternatives and are referred to as conceptual estimates by the design and construction industry. These estimates are generally prepared without a fully defined scope of work. They are general in nature and representative of a broad based vision rather than focused on specific details.) Prior to submitting funding requests for the design and construction phases, “Class B” estimates are required, based on detailed site and facility designs.

Deferred Maintenance Offset

Deferred maintenance is maintenance and repair activities that were not performed when they should have been or were scheduled to be and which, therefore, are put off or delayed for a future period. Maintenance and repairs are activities directed toward keeping fixed assets in an acceptable condition. Total costs for deferred maintenance offset in alternative A are listed in table 11. Deferred maintenance costs would “offset” the total one-time costs. For example, the total one-time costs are \$6,602,500, which would be reduced to \$6,579,500 after considering the deferred maintenance offset of \$23,000.

Prioritizing Actions in Alternative C

Actions in alternative C would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy, and purpose) or address promises made in the past to the public such as development of an equestrian staging area.

Low priority actions would address visitor opportunities and experiences, such as enhanced facilities, and would depend on sustained funding.

Cost estimates for alternative C are identified in table 12.

TABLE 11. SUMMARY OF ONE-TIME COST FOR ALTERNATIVE C

LOCATION	PROJECT	PROGRAM SUPPORT	FACILITY REHABILITATION/ REPLACEMENT	RESOURCE MANAGEMENT	NEW CONSTRUCTION	PRIORITY*	DEFERRED MAINTENANCE OFFSET
Reservewide	Update the fire management plan	\$35,000				1	
	Prepare soundscapes management plan	\$34,000				2	
	Conduct a wildlife inventory; develop and implement a monitoring plan; conduct an inventory in area around reserve	\$105,000				2	
	Develop an archeological management plan to manage California Trail ruins	\$45,000				1	
	Monitor and develop a treatment plan for features within the California Trail corridor	\$60,000				1	
	Develop a long-range interpretive plan	\$40,000				1	
	Develop a trails management plan to consider modifications for trail improvement	\$50,000				2	
	Trail from California Trail to Tea Kettle: 11,853 feet				\$60,000	2	
	Reconfigure camping in the Reserve to address safety and resource issues		\$1,050,000			1	
	Develop a turnaround area at the north end of Logger Springs Road				\$5,000	1	
DM Subtotal							-\$23,000
Research Natural Area	Refine the boundary of the Research Natural Area to conform to landscape features; includes addition of three small areas of 693 acres			\$30,000		1	
DM Subtotal							
Bread Loaves	Develop an additional equestrian staging area in the Reserve near the Bread Loaves intersection (or Elephant Rock)				\$120,000	1	
DM Subtotal							
Smoky Mountain Campground	Expand campground by 62 additional campsites (group tent camping emphasis)		\$1,030,000**			2	
	Partner with IDPR to construct an amphitheater at campground for ranger programs				\$75,000	1	

LOCATION	PROJECT	PROGRAM SUPPORT	FACILITY REHABILITATION/ REPLACEMENT	RESOURCE MANAGEMENT	NEW CONSTRUCTION	PRIORITY*	DEFERRED MAINTENANCE OFFSET
	Construct outdoor learning center with limited development of facilities and services				\$720,000**	2	
	Develop a formal trail from Smoky Mountain Campground to the summit of Smoky Mountain: 10,653 feet				\$60,000	2	
DM Subtotal							
Visitor Center	Partner with IDPR and others to develop and co-manage a visitor center near the Almo entrance; facility would include interpretation, a small theater, a multipurpose room, work space, outdoor exhibits, and a parking area		\$3,040,000**			1	
DM Subtotal							
Total Cost by Categories		\$369,000	\$5,120,000	\$30,000	\$1,040,000		-\$23,000
Total Priority 1 Costs	\$4,500,000						
Total Priority 2 Costs	\$2,059,000						
Total Existing Project Costs	\$43,500						
Total One-Time Improvement Cost of Alternative**	\$6,602,500						
Deferred Maintenance Offset	\$23,000						

*Priority 1 projects include projects that emphasize resource protection, threats, and visitor safety. Priority 2 projects include all other projects important to the full implementation of the alternative, including those that address visitor opportunities and experiences such as enhanced facilities as funding allows and could be sustained. Costs are in 2012 dollars.

**Total Capital Cost includes total Priority 1 and Priority 2 costs but does not include a reduction for Deferred Maintenance Offset.

**IDPR costs.

TABLE 12. ALTERNATIVE C, SUMMARY OF COSTS*

Category	Costs
Annual Operating Costs	
Existing Base Funding	\$698,647
New Personnel Costs	\$240,000
Total Annual Operating Costs	\$938,647
Personnel	FTE
Permanent	12 (+5)
One-Time Costs	
Total Existing Project Costs	\$43,500
One-Time Nonfacility Costs	
Program Support	\$369,000
Priority 1**	\$180,000
Priority 2***	\$189,000
Resource Management	\$30,000
Priority 1	\$30,000
Priority 2	\$0
Total One-Time Nonfacility Cost	\$399,000
One-Time Facility Costs	
New Construction	\$1,040,000
Priority 1	\$200,000
Priority 2	\$840,000++
Facility Rehabilitation	\$5,120,000
Priority 1	\$4,090,000++
Priority 2	\$1,030,000++
Total One-Time Facility Cost	\$6,160,000
Total Priority 1 Costs	\$4,500,000
Total Priority 2 Costs	\$2,059,000
Total One-Time Costs	\$6,602,500
Deferred Maintenance Offset	\$23,000

*Figures are rounded.

**Does not include funding for Castle Rocks State Park, although some costs support both the Reserve and the state park: for example, some staff and the visitor center.

***Actions in alternative C would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy and purpose) or address promises made in the past to the public such as development of an equestrian staging area. Low priority actions address visitor opportunities and experiences such as enhanced facilities as funding allows and could be sustained.

++Includes IDPR costs as follows: \$3,040,000 Priority 1 Facility Rehabilitation/Replacement for the visitor center, \$1,030,000 Priority 2 Facility Rehabilitation/Replacement for Smoky Mountain campground, and \$720,000 Priority 2 New Construction for the outdoor learning center.

ALTERNATIVE D: TREASURED LANDSCAPES INSPIRING STORIES

General Description

Alternative D would focus on protecting the important cultural, scenic, and geological landscapes of City of Rocks and would use these landscapes as a setting to tell the rich stories of the Reserve. This would include the stories of those who have historically used the land, those who passed through on their way to California, and those who live, work, and recreate in the Reserve today. Visitors would gain a deeper understanding of the Reserve's resources through more formal and structured recreational opportunities and programs. This alternative emphasizes a frontcountry day-use visitor experience for individuals, as well as for groups of various sizes and composition. It would encourage interaction and immersion by different user groups in the cultural and natural setting of the Reserve by providing enhanced opportunities to learn, recreate, and enjoy the special place that is the City of Rocks.

Management Zones Applied to Alternative D

The management zones for alternative D are taken from "Table 3. Management Zones." The specific configuration (mapping) of the management zones is provided in "Figure 10. Alternative D: Treasured Landscapes Inspiring Stories."

In alternative D, because of the emphasis on a frontcountry day use visitor experience, the Visitor Facilities and Access and Transition Zones would be larger than in the other alternatives. The Visitor Facilities and Access Zone would be a continuous zone from Bath Rock to the California Trail Zone, with small areas at Finger Rock, Twin Sisters, Circle Creek Overlook, and the Juniper group campsite. Facilities for visitors, such as restrooms, parking, and picnic areas, would be located in this zone.

The Transition Zone would be applied to an area surrounding the Visitor Facilities and Access

Zone on the west and northeast, which would allow for additional dispersed recreational facilities such as walk-in campsites, trails, waysides, and the proposed equestrian staging area. This zone would stretch from Bread Loaves to the California Trail corridor.

In alternative D, the Natural Zone would be similar to alternative C, but slightly smaller. This zone would include the higher rocky elevation lands at the north, east, and west, as well as a small area on the south end of the Reserve.

As in alternative B, the Research Natural Area Zone would be applied to refine the RNA boundary, allowing it to more closely follow terrain features, which would aid on-the-ground management.

The Historic Rural Setting Zone would be applied to the northern portion of Circle Creek Basin and the ranchlands in the southwest part of the Reserve. This zone would include areas with open rangeland.

Alternative D has the smallest California Trail Zone of the four alternatives, primarily containing the one-half mile California Trail corridor and southern offshoot, and including a portion of Circle Creek Basin.

Natural Resource Management

Natural resource management would be the same as in alternative A. In addition, a resource stewardship strategy would be developed to guide natural and cultural resource management.

Climate and Air Quality

Management of air quality would be the same as in alternative C.

Management of actions associated with climate change mitigation, research, and interpretation would be the same as alternative B, plus the Reserve would encourage commercial visitor services guides to use vehicles with alternative fuels to limit emissions within the Reserve and at Castle Rocks State Park. The Reserve would also encourage visitor activities that promote walking or hiking, rather than driving.

Geology and Soils

In alternative D, management of geological resources would be the same as in alternative C.

Management of soils would be the same as in alternative B.

Vegetation and Fire

Vegetation management would be the same as alternative C.

Fire management would be the same as alternative B.

Wildlife

Wildlife management would be the same as alternative A.

Soundscapes and Lightscares

Management of soundscapes and lightscares would be the same as alternative B.

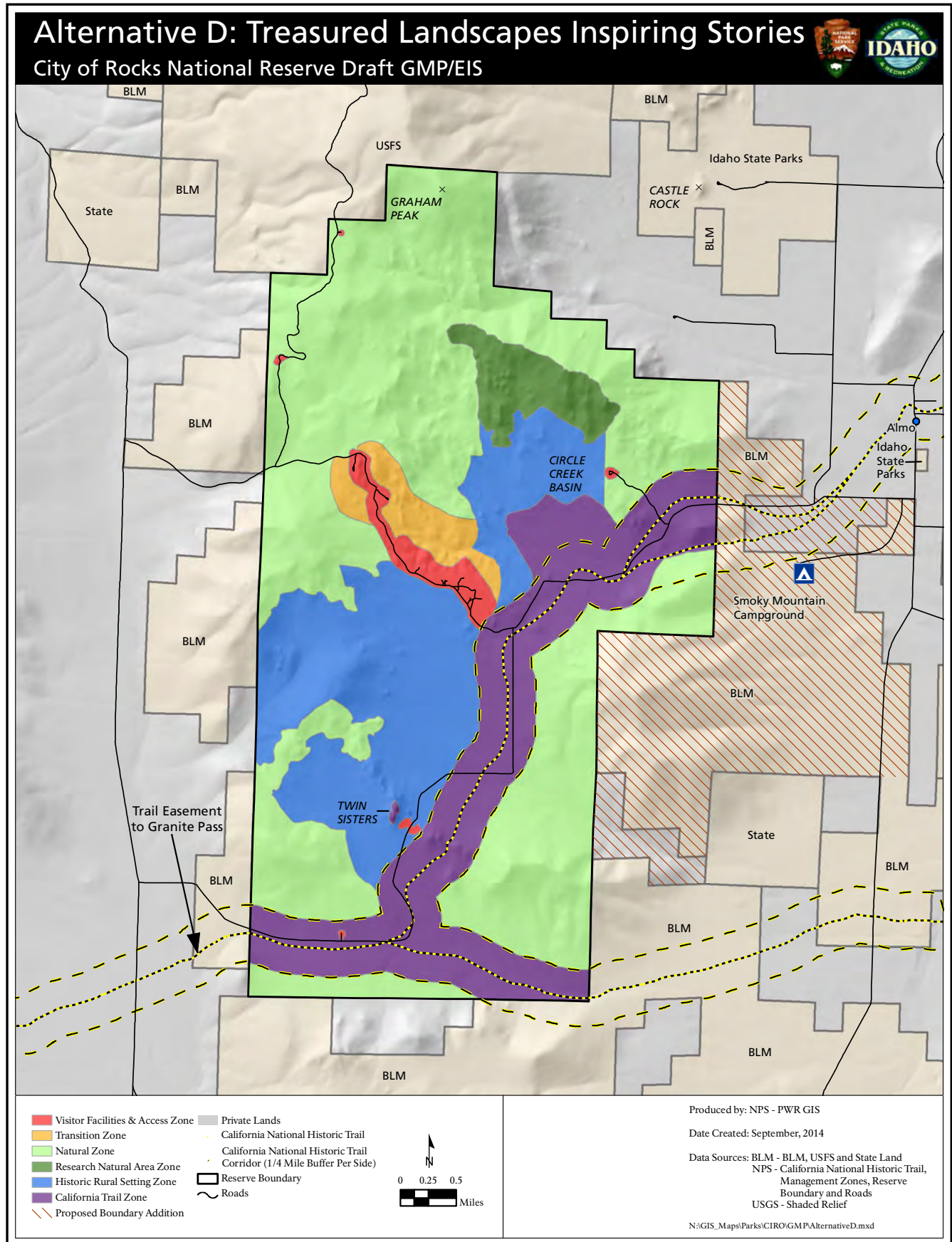
Cultural Resource Management

Cultural resources would be enhanced through active management. The Reserve would provide visitors with a direct experience of the cultural history of the area. The Reserve would focus on stabilization and preservation treatments to enhance interpretation of historic structures and cultural landscape features. California Trail-era resources associated with the national historic landmark would be preserved in accordance with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. Alternative D would add an additional 1.1 miles of the California National Historic Trail under NPS management through boundary expansion. In addition, a resource stewardship strategy would be developed to guide natural and cultural resource management.

Archeology

Management of archeological resources would be the same as in alternative A. In addition, Reserve staff would conduct archeological projects to research, identify, and document resources. To promote visitor understanding of archeological resources, Reserve staff would conduct demonstration projects.

FIGURE 10. ALTERNATIVE D: TREASURED LANDSCAPES INSPIRING STORIES



As in alternative B, the Reserve would develop an archeological management plan to manage California Trail ruts.

Cultural Landscapes

Treatment of cultural landscapes would be the same as in alternative B, including treatment of mining, homesteading, and ranching features and activities.

Special Designations

Hunting and Trapping

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Grazing

Livestock grazing in the Reserve is allowed in all management zones except in the Research Natural Area Zone. Grazing in wetland and riparian areas would be systematically eliminated and grazing would continue to be prohibited in the Research Natural Area. Cattle would be excluded from these riparian areas through a variety of means, such as by providing alternate water sources or adding fencing, as appropriate.

The Reserve would work with permittees to provide visitor interpretive opportunities and participation in grazing management activities. These could include participating in cattle drives, mending or constructing fences, monitoring grazing allotments, participating in branding demonstrations, and other activities.

Grazing permits would continue to be renewed in all zones (except the Research Natural Area Zone) unless there is permittee abandonment or consistent failure to comply with conditions of the permit.

To minimize visitor conflicts, the Reserve would also consider removing cattle pasturing from the Visitor Facilities and Access Zone where possible. This could result in a slight reduction in grazing from reconfiguring existing allotments. As in other alternatives, the grazing management plan would be updated to reflect these changes. Because implementation of the grazing management plan recommendations may affect

wetlands within the Reserve, if implemented these actions would need to be addressed in a future NPS wetlands statement of findings. This would ensure that the update to the grazing management plan complies with Executive Order 11990, “Protection of Wetlands.”

Research Natural Area

Management and delineation of the Research Natural Area would be the same as alternative B.

Natural Historic Landmark

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

National Natural Landmark

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Section 36

(See “Special Uses and Designations” in the “Actions Common to All Alternatives” section and “Table 3. Management Zones.”)

Interpretation and Education

Interpretation and education would be expanded beyond alternative A to include enhanced on-site personal interpretive and educational programs featuring staff, partners, and volunteers in various special events. Special events could include heritage events celebrating California Trail history with horse and wagon rides and Dutch oven suppers along the trail; trail rides and local speakers at campfires discussing the area’s ranching history; commemorating American Indian traditions through art, music, and inspiring talks by native peoples; and/or stories of the settlement of the Almo area told by descendants of the pioneers.

Activities related to natural resources could include ranger-led or field expert-led nature hikes, night sky viewing opportunities, geology field schools, and on-site hunter education programs based on sound wildlife management principles. Special events could allow diverse

groups to learn about and explore the Reserve, and local outfitters could provide food and accommodations for some of these programs.

Alternative D would allow opportunities for visitors to engage in on-site living history activities and demonstration projects to learn about archeology and other cultural resources. Programs would focus on the California Trail and ranching heritage. Some of these activities would be provided at the proposed full-service visitor center and some through commercial visitor services.

The Reserve would work with permittees to provide interpretive opportunities and visitor participation in grazing management activities. This could include participating in cattle drives, mending or constructing fences, monitoring grazing allotments, participating in branding demonstrations, and other activities.

Interpretive Programs

Interpretive programs would be expanded and the Reserve would conduct a variety of programs and activities to promote experiential and heritage learning and recreation, including outreach to youth and new visitors.

Alternative D would expand interpretive and educational programming to emphasize the natural and cultural history of City of Rocks including site-specific interpretation where appropriate.

There would be more guided walks and talks on a variety of natural and cultural themes. Alternative D could include increased staff-led and nonprofit-led immersive experiences (in depth fee interpretation [interpretation at an additional cost], such as weekend programming). The Parks as Classrooms program and activities such as satellite broadcasts on park theme topics would be expanded. As with other interpretive programming, these educational programs would be designed to transfer knowledge and engender stewardship in future generations.

A long-range interpretive plan would be developed based on the interpretive themes in the foundation document.

Youth

Activities for youth would include those in alternative A, but would be expanded to engage youth and new visitors in programs and opportunities, such as Parks as Classrooms or a climbing school. Youth would also be encouraged to participate in citizen stewardship activities such as trail maintenance or other park projects.

Visitor Experience

In alternative D, the Reserve would emphasize a frontcountry, day-use experience with a focus on group activities and formal education. The wide range of recreational opportunities and learning experiences would appeal to a broad range of visitors.

Recreational Opportunities

The current array of recreational opportunities would be expanded to include additional day-use activities, such as more walks and hikes, horseback riding, and biking opportunities.

Trails

Actions associated with trails would be the same as in alternative C (see “Figure 9. Trail Additions for Alternatives C and D”).

Climbing

Climbing management actions would be the same as in alternative B.

Equestrian Staging

Development of equestrian staging would be the same as alternative B.

Commercial Visitor Services

There would be more potential for commercial visitor services and activities in this alternative compared to alternatives A, B, and C. Programs could include fee interpretation and education provided by partners, including organizations, academic institutions, agencies, community

members, and tribal representatives. Educational programs could feature painting or writing workshops, field schools, classes, and guided recreational activities.

Commercial visitor services could provide opportunities for on-site living history cultural activities and demonstration projects that focus on the California Trail, ranching heritage, and significant resources such as prehistory or historic archeology.

NPS Visitor and Administrative Facilities

Visitor Center

In alternative D, a combined City of Rocks National Reserve / Castle Rocks State Park visitor center would be developed as called for by the Reserve's 1996 comprehensive management plan and *Castle Rocks State Park Master Plan*. This full-service visitor center facility would be the same as in alternative A and would be located within the expanded boundary, close to the Almo entrance of the Reserve. In addition (and not part of alternative A), an outdoor plaza / "after hours" orientation area could also be developed as part of the visitor center design. This outdoor plaza would serve the function as an amphitheater and could be used for outdoor classroom space, interpretive programs, or special events.

Based on the continued NPS/IDPR partnership, the National Park Service would design and develop the visitor center. The Idaho Department of Parks and Recreation would continue to manage visitor center operations according to the existing cooperative agreement. Transfer of the visitor center property from the Bureau of Land Management to the National Park Service, if authorized by Congress, would require the Idaho Department of Parks and Recreation to relinquish its R&PP lease with the Bureau of Land Management. A variety of funding sources could be used to support the design and development of the visitor center. Among these could be transportation enhancement funds, grants from private foundations, and others, in addition to those that the National Park Service or the Idaho Department of Parks and Recreation may provide.

The visitor center location would be evaluated for feasibility and compatibility with the landscape and resources through additional environmental impact analysis. A design team would also be encouraged to evaluate other nearby potential sites. Access, traffic, and parking opportunities, as well as viewsheds to and from the visitor center, would be considered.

As in the other alternatives, the National Park Service would use local materials from the immediate region or modern materials that blend with local colors and landscapes. Sustainable design principles would be used to reduce the total costs of heating and cooling and feature native plant landscaping.

Smoky Mountain Campground

In alternative D, Smoky Mountain Campground would be located within the proposed expanded Reserve boundary. Another campground loop would be added with up to 62 additional campsites. The second campground loop would be paved and provide for a mixture of tent and RV camping but the emphasis would be on individual tent camping. Infrastructure, such as power and a water supply, already exists and more showers and toilets could be added based on the availability of water.

An amphitheater would be constructed at the campground to provide for ranger programs.

The exact location of the second campground loop would be determined based on analysis of potential impacts on resources and would be designed to minimize visual impacts. Tree cover would be maintained or added to screen around campsites, where possible.

As with the proposed visitor center, if the Bureau of Land Management transferred ownership of the campground area to the National Park Service, the Idaho Department of Parks and Recreation would relinquish its R&PP lease with the Bureau of Land Management for Smoky Mountain Campground. This would allow the National Park Service to fund the campground loop and amenities. The Idaho Department of Parks and Recreation would probably continue to operate the campground according to

the existing cooperative agreement and the operation plan and guidelines for management. Campground fees would be retained by the Idaho Department of Parks and Recreation for the operation of the Reserve.

Reserve Campsites

The reconfiguration of Reserve campsites would be the same as alternative B (see “Appendix D: Rim Development Concept Plan for City of Rocks National Reserve”).

Visitor Facilities

The Reserve would develop additional waysides and exhibits based on interpretive themes and other relevant topics. More vault toilets and additional parking areas would be constructed as needed for increased day-use activities.

Reserve Roads

Management of Reserve roads would be the same as in alternative A. In addition, to safely accommodate a few cars and enable people to turn around off the narrow road and protect adjacent resources, parking at the Indian Grove Overlook off Logger Springs Road would be formalized with a designated area and parking spaces.

Partnerships

IDPR Visitor and Administrative Facilities

Administration

(See “Reserve Management and Operations” in the “Actions Common to All Alternatives” section.)

Maintenance

(See “Reserve Management and Operations” in the “Actions Common to All Alternatives” section.)

Employee Housing

The Reserve would encourage local communities in southern Cassia County to provide additional housing for seasonal employees.

Cassia County Road Network

Management of Cassia County roads would be the same as in alternative B.

Other Partnerships

In addition to offering expanded programming, the Reserve would partner with others for interpretation, outreach, and education. Partnerships with adjacent land managers to expand trail connections and provide a continuum of recreational experiences would also be developed. The Reserve would build relationships with partners, user groups, and tribes to emphasize citizen stewardship activities and to encourage them to share their connections and stories with each other and the public.

Environmental Sustainability

The energy efficiency and environmental sustainability strategy of alternative D would be the same as in alternative B.

Reserve Boundary

In alternative D, the National Park Service would propose a boundary modification to add scenic resources, portions of the California National Historic Trail, and the pinyon-juniper forest into the Reserve at the east boundary. Smoky Mountain Campground and land currently leased to the state by the Bureau of Land Management would be included in this proposed boundary.

As in alternative C, if authorized by Congress, the identified federal lands now managed by the Bureau of Land Management would be administratively transferred within the Department of the Interior from the Bureau of Land Management to the National Park Service (see “Figure 10. Alternative D: Treasured Landscapes Inspiring Stories”). Acquisition of a full or partial interest, if any, by the National Park Service in the two private parcels included in the revised boundary under this alternative would be restricted to an opportunity purchase situation through a voluntary sale of land or

scenic easements to the National Park Service. This means that the acquisition would occur only if the landowner was willing to sell, and if adequate funding to support the purchase was available. Cassia County would continue to retain jurisdiction over all remaining private lands within the Reserve boundary.

This boundary modification would include an additional 4,247 acres of land: 652 acres (15%) in two private parcels and 3,595 acres (85%) managed by the Bureau of Land Management.

Changing from BLM to NPS management of these lands would change the management emphasis. The missions of the National Park Service and the Bureau of Land Management are different. Although both agencies provide public services and products, the Bureau of Land Management manages land under the Federal Land Policy and Management Act of 1976, as amended. This act established a multiple-use mandate for the Bureau of Land Management to serve present and future generations. The National Park Service manages land under the Organic Act of 1916. Based on this act, the National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service also cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world. Specifically, the NPS mandate for land management is for preservation while the BLM mandate for land management is based on multiple use. In practice, this means that the National Park Service allows for fewer adverse effects on resources under its management jurisdiction.

As in alternatives B and C, at the southwest boundary of the Reserve, the National Park Service would encourage Cassia County and private landowners to protect the California Trail corridor from the southwest corner of the Reserve to Granite Pass.

Although there are no active mining claims or geothermal leases located on the BLM lands

proposed for inclusion within the Reserve boundary, the area is open to mining claims and mineral sales unless these lands are withdrawn from mineral entry through the BLM realty processes (BLM 2012b).

In alternative D, modification of the boundary would include:

- Adding portions of Idaho's only pinyon pine forest ecosystem
- Adding another 1.1 miles of the California National Historic Trail to the Reserve
- Enabling the Reserve to coordinate and manage increased recreational use and impacts—such as dispersed camping around Smoky Mountain Campground—which could reduce the threat of human-caused wildfires
- Providing the National Park Service an opportunity to share in the development costs of recreational facilities at Smoky Mountain Campground.

Operations

Staffing

Alternative D would require 5 additional FTEs for a total of 12 full-time staff.

New NPS positions needed to implement alternative D would include two interpretive specialists, one visitor protection specialist (law enforcement ranger), one maintenance worker, and one education specialist / volunteer coordinator. The second interpretive position would be used to address the increased capacity at the new visitor center and increased emphasis on front-line interpretation. The education specialist / volunteer coordinator would be needed to address more formal, structured recreational and educational programs. To address additional infrastructure needs, an additional maintenance position would be sought. Due to the existing budget climate for both the National Park Service and the Idaho Department of Parks and Recreation, it is assumed that the National Park Service would provide full funding for all new positions.

The percentages of funding for each position supplied by the National Park Service and the Idaho Department of Parks and Recreation are represented in the following table under Funding Agency. Table 13 does not include seasonal staffing, which would vary depending on needs and funding allocations.

TABLE 13. ALTERNATIVE D, STAFFING

Position	IDPR	NPS	New FTE
Park Manager III	100%		
Assistant Park Manager		100%	
Maintenance Foreman	75%	25%	1 (100% NPS)
Climbing Ranger	25%	75%	
Park Ranger – Visitor Services		100%	1 (100% NPS)
Park Ranger – Natural Resources	50%	50%	
Park Ranger – Cultural Resources		100%	
Park Ranger – Interpretation			2 (100% NPS)
Education Specialist / Volunteer Coordinator			1 (100% NPS)

*FTE percentages between IDPR and NPS are stated in the "2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)."

Estimated Costs

No matter which alternative is selected, the implementation of the approved plan would depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan would be forthcoming. Full implementation of the plan could take many years.

Annual Operating Costs

Annual operating costs are the total costs per year for maintenance and operations associated with each alternative, including utilities, supplies, staff salaries and benefits, leasing, and other materials. Cost and staffing estimates assume that the alternative is fully implemented as described in the narrative.

FTE salaries and benefits are included in the annual operating costs.

One-time Costs

One-time facility costs (table 14) include those costs for the design, construction, rehabilitation and adaptive reuse of facilities including visitor facilities, roads, parking, and support facilities. The one-time costs for alternative D would include costs associated with the development of the equestrian staging area, reconfiguration of the Reserve campsites, and constructing a replacement visitor center and the additional campground loop (with an emphasis on individual tent camping) and amphitheater at Smoky Mountain Campground.

One-time nonfacility costs include actions for the preservation of cultural or natural resources not related to facilities, the development of visitor use tools not related to facilities, and other park management activities that would require substantial funding above annual operating costs. Examples include updating management plans.

Program support costs include technology, grants, development of plans, or other program support.

These costs are in 2012 dollars and are based on general "Class C" estimates for site development and construction. (According to the 2011 NPS Cost Estimating Requirements Handbook, Class C construction cost estimates are used for alternatives and are referred to as conceptual estimates by the design and construction industry. These estimates are generally prepared without a fully defined scope of work. They are general in nature and representative of a broad-based vision rather than focused on specific details.) Prior to submitting funding requests for the design and construction phases, "Class B" estimates are required, based on detailed site and facility designs.

Deferred Maintenance Offset

Deferred maintenance is maintenance and repair activities that were not performed when they should have been or were scheduled to be

and which, therefore, are put off or delayed for a future period. Maintenance and repairs are activities directed toward keeping fixed assets in an acceptable condition. Total costs for deferred maintenance offset in alternative A are listed in table 14. Deferred maintenance costs would “offset” the total one-time costs. For example, the total one-time costs are \$10,793,500, which would be reduced to \$10,770,500 after considering the deferred maintenance offset of \$23,000.

Prioritizing Actions in Alternative D

As in the other alternatives, actions in alternative D would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy, and purpose) or address promises made in the past to the public such as development of an equestrian staging area.

Low priority actions would address visitor opportunities and experiences, such as enhanced facilities, and would depend on sustained funding.

Cost estimates for alternative D are identified in table 15.

TABLE 14. SUMMARY OF ONE-TIME COST FOR ALTERNATIVE D

LOCATION	PROJECT	PROGRAM SUPPORT	FACILITY REHABILITATION / REPLACEMENT	RESOURCE MANAGEMENT	NEW CONSTRUCTION	PRIORITY*	DEFERRED MAINTENANCE OFFSET
Alternative D							
Reservewide	Update the fire management plan	\$35,000				1	
	Prepare soundscapes management plan	\$34,000				2	
	Develop an archeological management plan to manage California Trail ruts	\$45,000				1	
	Monitor and develop a treatment plan for features within the California Trail corridor	\$60,000				1	
	Develop a long-range interpretive plan	\$40,000				1	
	Develop a trails management plan to consider modifications for trail improvement	\$50,000				1	
	Trail from California Trail to Tea Kettle: 11,853 feet				\$60,000	2	
	Reconfigure camping in the Reserve to address safety and resource issues		\$1,050,000			1	
	Engage youth in programs and opportunities such as classrooms or a climbing school	\$10,000				1	
	Encourage youth participation in citizen stewardship activities such as trail maintenance or other park projects	\$10,000				1	
	Construct additional vault toilets for increased day-use activities				\$41,000	2	
	Formalize parking at the Indian Grove Overlook		\$10,000			2	
DM Subtotal							
Research Natural Area	Refine the boundary of the Research Natural Area to conform to landscape features; includes addition of three small areas of 485 acres			\$30,000		1	
DM Subtotal							
Bread Loaves	Develop an additional equestrian staging area in the Reserve near the Bread Loaves intersection				\$120,000	1	
DM Subtotal							
Smoky Mountain Campground	Expand campground by 62 additional campsites (with an emphasis on individual tent camping)		\$3,520,000			2	

LOCATION	PROJECT	PROGRAM SUPPORT	FACILITY REHABILITATION / REPLACEMENT	RESOURCE MANAGEMENT	NEW CONSTRUCTION	PRIORITY*	DEFERRED MAINTENANCE OFFSET
	Partner with IDPR to construct an amphitheater at campground for ranger programs				\$75,000	1	
	Develop a formal trail from Smoky Mountain Campground to the summit of Smoky Mountain: 10,653 feet				\$60,000	2	
DM Subtotal							
Visitor Center	Partner with IDPR to develop and co-manage a full-service visitor center within the expanded boundary close to the Reserve entrance; includes interpretation, theater, multi-purpose room, work space, parking area and outdoor gathering area for formal programs		\$5,500,000			2	
DM Subtotal							
Total Cost by Categories		\$284,000	\$10,080,000	\$30,000	\$356,000		-\$23,000
Total Priority 1 Costs	\$1,525,000						
Total Priority 2 Costs	\$9,225,000						
Total Existing Project Costs	\$43,500						
Total One-Time Improvement Cost of Alternative**	\$10,793,500						
Deferred Maintenance Offset	\$23,000						

*Priority 1 projects include projects that emphasize resource protection, threats, and visitor safety. Priority 2 projects include all other projects important to the full implementation of the alternative, including those that address visitor opportunities and experiences such as enhanced facilities as funding allows and could be sustained. Costs are in 2012 dollars.

**Total Capital Cost includes total Priority 1 and Priority 2 costs but does not include a reduction for Deferred Maintenance Offset.

USER CAPACITY

OVERVIEW

In managing for user capacity, the City of Rocks National Reserve staff and partners rely on a variety of management tools and strategies rather than relying solely on regulating the number of people in the Reserve. In addition, the ever-changing nature of visitor use requires a deliberate and adaptive approach to user capacity management.

The foundations for making user capacity decisions in this draft GMP/EIS are the purpose, significance, special mandates, and management zones associated with the park. The purpose, significance, and special mandates define why the park was established and identify the most important resources, values, and visitor opportunities that would be protected and provided. The management zones in each action alternative describe the desired resource conditions and visitor experiences, including appropriate types of activities and general use levels, for different locations throughout the Reserve. The zones, as applied in the alternatives, are consistent with, and would help the National Park Service achieve, its specific purpose, significance, and special mandates. As part of the NPS commitment to implementing user capacity, the Reserve staff would abide by these directives for guiding the types and levels of visitor use that would be accommodated in order to sustain the quality of Reserve resources and visitor experiences consistent with the purposes of the Reserve.

In addition to these important directives, this GMP includes indicators and standards for City of Rocks National Reserve. Indicators and standards are measureable variables that would be monitored to track changes in resource conditions and visitor experiences. The indicators and standards help the National Park Service ensure that desired conditions are being attained, supporting the fulfillment of the Reserve's legislative and policy mandates. The draft GMP/EIS also identifies the types

of management actions that would be taken to achieve desired conditions and related legislative and policy mandates.

Table 16 includes the indicators, standards, and potential future management and monitoring strategies, allocated by management zones, that would be implemented as a result of this planning effort. The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most important, given the significance and vulnerability of the resource or visitor experience affected by visitor use. The planning team also reviewed the experiences of other parks with similar issues to help identify meaningful indicators. Standards that represent the minimum acceptable condition for each indicator were then assigned, taking into consideration the qualitative descriptions of the desired conditions, data on existing conditions, relevant research studies, staff management experience, and scoping on public preferences.

User capacity decision-making is a form of adaptive management ("Figure 11. User Capacity Framework") in that it is an iterative process in which management decisions are continuously informed and improved. Indicators are monitored, and adjustments are made as appropriate. As monitoring of conditions continues, managers may decide to modify or add indicators if better ways are found to measure important changes in resource and social conditions. Information on the NPS monitoring efforts, related visitor use management actions, and any changes to the indicators and standards would be available to the public through the most appropriate and effective outreach method chosen by the Reserve. It should be noted that revisions to indicators and standards would potentially be subject to analysis under the National Environmental Policy Act, the National Historic Preservation Act, and conformance to other laws, regulations, and policies.

TABLE 15. ALTERNATIVE D, SUMMARY OF COSTS*

Category	Costs
Annual Operating Costs	
Existing Base Funding	\$698,647
New Personnel Costs	\$240,000
Total Annual Operating Costs	\$938,647
Personnel	FTE
Permanent	12 (+5)
One-Time Costs	
Total Existing Project Costs	\$43,500
One-Time Nonfacility Costs	
Program Support	\$284,000
Priority 1 **	\$250,000
Priority 2 ***	\$34,000
Resource Management	\$30,000
Priority 1	\$30,000
Priority 2	\$0
Total One-Time Nonfacility Cost	\$314,000
One-Time Facility Costs	
New Construction	\$356,000
Priority 1	\$195,000
Priority 2	\$161,000
Facility Rehabilitation	\$10,080,000
Priority 1	\$1,050,000
Priority 2	\$9,030,000
Total One-Time Facility Cost	\$10,436,000
Total Priority 1 Costs	\$1,525,000
Total Priority 2 Costs	\$9,225,000
Total One-Time Costs	\$10,793,500
Deferred Maintenance Offset	\$23,000

*Figures are rounded

**Does not include funding for Castle Rocks State Park, although some costs support both the Reserve and the state park: for example, some staff and the visitor center.

***Actions in alternative D would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy and purpose) or address promises made in the past to the public such as development of an equestrian staging area. Low priority actions address visitor opportunities and experiences such as enhanced facilities as funding allows and could be sustained.

Program Support represents costs such as development of plans (long-range interpretive plan, cultural and natural resource plans), technology, grants or other program support.

TABLE 16. INDICATORS, STANDARDS, MANAGEMENT STRATEGIES, AND MONITORING STRATEGIES

Indicator	What Does the Indicator Measure?	Zone	Standard	Management Strategies	Related Monitoring Strategies
Possible: Linear feet, width, depth, and grade of disturbed vegetation (unwanted visitor-created trails) due to foot traffic.	Vegetation and soil impacts due to foot traffic (i.e., unwanted visitor-created trails).	Visitor Facilities and Access Zone	Visitor-created trails would constitute no more than 20% of the linear feet of the total trails in the park. (This may need to be adapted after baseline assessment.)	<ul style="list-style-type: none"> Education (language about the importance of staying on trails). Signage. Natural barriers. Erosion control measures. Brush out areas. Close off areas. Formalize trails that could be deemed appropriate. 	<ul style="list-style-type: none"> Do a baseline validation every 3 years. Overlap with campsite assessment efforts where applicable.
		Transition Zone	Visitor-created trails would constitute no more than 10% of the linear feet of the total trails in the park. (This may need to be adapted after baseline assessment.)	<ul style="list-style-type: none"> Same 	<ul style="list-style-type: none"> Do a baseline validation every 5 years.
Number of total days that campsites are 95% –100% full during peak season (mid-May to mid-October).	Measure how often campsites are at full capacity and may affect visitor experience.	Visitor Facilities and Access Zone	No more than 9 days total that campsites are at 95%– 100% full during peak season (mid-May to mid-October).	<ul style="list-style-type: none"> Increase education for visitors preplanning their camping visits. Encourage people to use other camping opportunities or facilities (private or public), including in other zones within the Reserve or areas outside the Reserve. Market strategies to promote midweek (Tuesday–Thursday) camping (e.g., discounts). Improve the ReserveAmerica website, so that it tells people when the campsite is full. Reserve posts signs when campsites are full (signs at the entrance to loop or at the entrance to the Reserve). 	<ul style="list-style-type: none"> Daily arrival list tells if campground is full.

TABLE 16. INDICATORS, STANDARDS, MANAGEMENT STRATEGIES, AND MONITORING STRATEGIES

Indicator	What Does the Indicator Measure?	Zone	Standard	Management Strategies	Related Monitoring Strategies
Number of visitor complaints via comment cards or reports to camp host or rangers about not finding place to picnic or finding someone parking in their campsite.	Day and overnight visitor conflicts (i.e., day users are walking through campsites and parking in overnight camping parking areas).	Visitor Facilities and Access Zone	No more than 3 complaints per day.	<ul style="list-style-type: none"> Reserve staff would help direct traffic. Education: encourage people to use other picnic areas that are not typically full. 	<ul style="list-style-type: none"> Monitor number of complaints.
Number of dog depressions dug at climbing staging areas.	Vegetation and soil impacts due to dog traffic (especially at climbing staging areas).	Visitor Facilities and Access Zone Transition Zone Natural Zone RNA Zone Historic Rural Setting Zone	<p>All zones except RNA: No more than 50% of climbing staging areas have more than 2 dog depressions.</p> <p>RNA Zone: No more than 25% of climbing staging areas have more than 2 dog depressions.</p>	<ul style="list-style-type: none"> Educate dog owners. Provide a kiosk with information about responsible dog use. Signs remind that unattended dogs are not allowed. Redesign fences to reduce or eliminate problem. Require a permit to allow dogs in the Reserve. Do not allow dogs. 	<ul style="list-style-type: none"> Need baseline number of dog depressions at each climbing staging area. Annual monitoring would occur.
Number of incident reports, written warnings, comment cards, and verbal complaints relating to dog incidents (e.g., dogs off leash, dog fights, dog bites, barking).	Nuisance dogs (e.g., digging, off-leash, fights, waste, etc.).	All Zones	<p>Visitor Facilities and Access Zone: During peak season there would be no more than 2 citations, written warnings, or complaints per week.</p> <p>All other zones: During peak season there would be no more than 1 citation, written warning, or complaint per week.</p>	<ul style="list-style-type: none"> Continuing education. Improved or increased signage. Ranger patrols. Enforcement. 	<ul style="list-style-type: none"> Ranger/employee patrols. Accounts of warnings and citations.

TABLE 16. INDICATORS, STANDARDS, MANAGEMENT STRATEGIES, AND MONITORING STRATEGIES

Indicator	What Does the Indicator Measure?	Zone	Standard	Management Strategies	Related Monitoring Strategies
Number of vehicles parked in undesignated areas per day during peak periods on the county road.	Social and natural resource impacts: measuring the number of vehicles in undesignated areas prevents damage to vegetation and soils, minimizes safety hazards, and ensures compliance with parking regulations.	Visitor Facilities Zone Transition Zone Natural Zone Historic Rural Setting Zone California Trail Zone	No more than 5 vehicles are allowed to overflow into the county road from designated parking areas.	<ul style="list-style-type: none"> Educate the public. Collaborate with the county. Educate the Roads Foreman, the County Deputy, and Cache Peak Civic Association (in this order). Involve the Quick Response Unit. Partner and identify new parking areas along the county road. When 3 or more vehicles overflow onto the county road from designated parking areas, the Reserve would call County. 	<ul style="list-style-type: none"> Monitor during peak-use days (weekends/holidays). Monitor mid-May to mid-October. Ensure regular ranger patrol (2 patrols per day). Restroom staff could also monitor parking when they are working. Monitor number of incidents of parking on vegetation.
Number of vehicles parked in undesignated areas per day during peak periods on Reserve roads.	Social and natural resource impacts: measuring the number of vehicles in undesignated areas prevents damage to vegetation and soils, minimizes safety hazards, and ensures compliance with parking regulations.	All zones except RNA (no cars allowed in RNA Zone)	No vehicles are allowed to overflow from designated parking areas into undesignated areas.	<ul style="list-style-type: none"> Education of partners. Temporary signs. Add car bumpers to designate parking spaces in parking lots / campsites. Improvement of parking. Provide more parking in some places. Assisted parking by staff in problem areas. The first incident of parking on vegetation would trigger a written warning or citation. When 5 vehicle written warnings or citations are given at the same location in the same year, the Reserve would consider parking lot redesign. 	<ul style="list-style-type: none"> Monitor during peak use days (weekends/holidays). Mid-May to mid-October. Ensure regular ranger patrol (2 patrols per day). Restroom staff could also monitor parking when they are working. Monitor number of incidents of parking on vegetation.

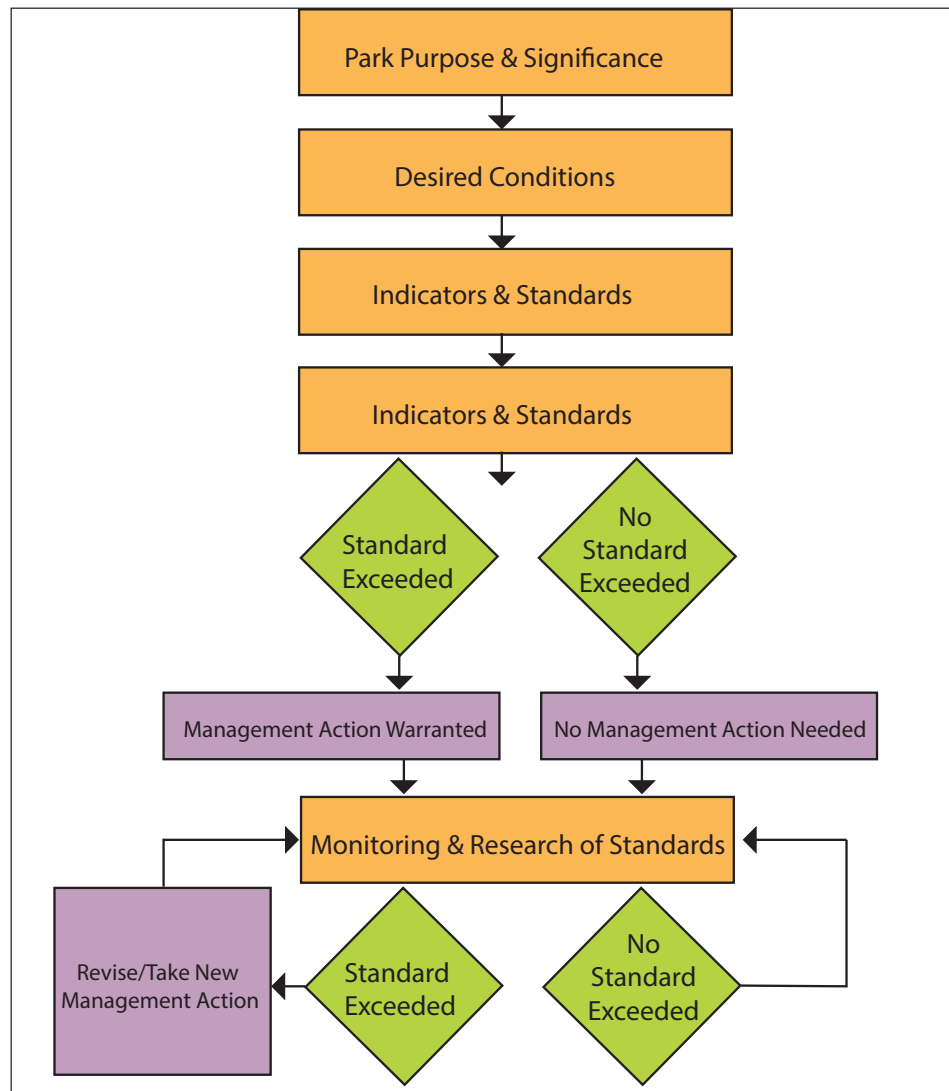
TABLE 16. INDICATORS, STANDARDS, MANAGEMENT STRATEGIES, AND MONITORING STRATEGIES

Indicator	What Does the Indicator Measure?	Zone	Standard	Management Strategies	Related Monitoring Strategies
Number of occurrences of unsafe driving, as logged by visitor complaints, complaints to ranger, and comment cards.	Measure how often unsafe driving might occur, considering road and weather conditions.	County-owned roads in all zones (N/A in the RNA Zone)	No more than 3 visitor complaints per day.	<ul style="list-style-type: none"> Call county to dispatch county sheriff. 	<ul style="list-style-type: none"> Tally the complaints.
		NPS jurisdictional roads in all zones (N/A in the RNA Zone)	No more than 2 visitor complaints per day.	<ul style="list-style-type: none"> Educate visitors about regulations. Dispatch a Reserve staff member to minimize the problem and/or be visible to visitors. Post speed limits. Issue citations. 	<ul style="list-style-type: none"> Tally the complaints.
Number of incidents of graffiti, ground disturbance, damage to structures, or loss of historic fabric, as logged by complaints, reports to ranger, and ranger observation.	Incidents of damage to cultural resources.	All zones	<p>All sites maintained to at least "good" condition under annual assessment guidelines.</p> <p>No more than an average of 3 incidences over 5 years.</p>	<ul style="list-style-type: none"> Educate the public. Signage. Patrol and presence. Increase ranger patrols in specific high-use areas. Fencing where appropriate. 	<ul style="list-style-type: none"> Annual condition assessments. Patrols.
Number of complaints relating to noise intrusions as logged by incident reports, complaints, and comment cards (particularly in campsites).	Measures noise around campsites.	Visitor Facilities and Access Zone	No more than 1 report, citation, complaint, or warning per season (April–October).	<ul style="list-style-type: none"> Education. Signs on kiosks, information on pamphlets, information on ReserveAmerica. Patrols by rangers/employees. Contacting visitors. 	<ul style="list-style-type: none"> Documentation of noise to observe whether it changes over time. Patrols by rangers/employees. May need to conduct patrols during the quiet hours.

TABLE 16. INDICATORS, STANDARDS, MANAGEMENT STRATEGIES, AND MONITORING STRATEGIES

Indicator	What Does the Indicator Measure?	Zone	Standard	Management Strategies	Related Monitoring Strategies
Number of groups/people waiting to climb a route outside of the staging area per day.	Measure how many people have to wait to climb.	Visitor Facilities and Access Zone Transition Zone Natural Zone RNA Zone	No more than 2 groups waiting to climb a route outside of a staging area at a time.	<ul style="list-style-type: none"> Education to encourage people to wait in already disturbed areas. Education that would identify other available routes in the same climbing class. Education to disperse use to more durable areas or to unused areas. Ranger would encourage visitors to move to other areas. 	<ul style="list-style-type: none"> Ranger observations when patrolling (2 patrols per day). Restroom staff could also monitor climbing wait periods when they are working.
Number of human waste/toilet paper sightings by ranger during patrol in problem areas (counted twice per season).	Measuring how often people might encounter human waste.	Visitor Facilities and Access Zone Transition Zone	No more than 1 sighting of human waste in a known problem area.	<ul style="list-style-type: none"> Education about restroom locations. Education on Leave No Trace strategies. Possibly add new concrete vault toilets. Management strategies would depend on severity of problem. 	<ul style="list-style-type: none"> Ranger patrols in problem areas (2 patrols per day (did we mean 2 patrols per year?). Restroom staff could also monitor for human waste when they are working.
Campsite condition class assessment as assessed annually in FMSS.	See protocols in FMSS.	See locations in FMSS.	See protocols in FMSS.	See protocols in FMSS.	See protocols in FMSS.

FIGURE 11. USER CAPACITY FRAMEWORK



Indicators and Standards

The priority indicators for City of Rocks National Reserve are associated with the following issues:

- Visitor-created trails (vegetation and soil impacts due to foot traffic)
- Full campsites
- Day and overnight use conflicts
- Vegetation and soil impacts (caused by dogs at climbing staging areas)
- Nuisance dogs (digging, off leash, fights, waste)
- Vehicles parked in undesignated areas on county and reserve roads
- Unsafe driving conditions
- Incidents of damage to cultural resources
- Noise around campsites
- Wait time for climbing routes
- Human waste

Visitor-created Trails

The proliferation of visitor-created trails at the Reserve has become an issue of concern, especially pertaining to trails leaving campsites and going into the surrounding areas. Addressing the expansion of visitor-created trails is considered a high priority due to associated impacts such as vegetation loss and soil impacts. The indicator for visitor-created trails is based on a modified version of a trail condition class system developed by Jeff Marion of the U.S. Geological Survey (Marion and Hockett 2008). Depending on the level of impact for each trail of concern, measurements for this indicator may include linear feet, width, depth, and grade of disturbed vegetation. The standard for this indicator specifies that visitor-created trails would constitute no more than 20% of the total linear feet of trails in the park. The Reserve staff has not conducted an initial baseline assessment for visitor-created trails and would plan to do a baseline validation of visitor-created trails every three years once monitoring begins. The standard may need to be adapted after the baseline assessment to ensure that trail condition is being adequately protected with this monitoring framework. Monitoring efforts would overlap with campsite assessments where applicable.

As part of the *Rim Development Concept Plan for City of Rocks National Reserve* (Appendix D), the National Park Service would place barriers in front of visitor-created trails at certain campsites to minimize their continued use and would restore the area's natural resources. If standards are exceeded for visitor-created trails, the Reserve staff would increase education about the need to follow existing paths to campsites and staying on the trail. Appropriate preventative measures would be taken, such as increasing signage about trails, creating natural barriers and erosion control measures, brushing out areas, closing off areas if needed, and formalizing trails that are considered appropriate.

Campsites Full

The Reserve maintains 64 standard campsites, which are located in and among the granite formations, with easy access to trails and vistas.

Most sites include a tent pad, picnic table, and fire ring. Campsites may be reserved online nine months in advance for May 1 through September 30 use, or they can be obtained on a first-come, first-served basis year-round. Because of the easy access to trails and climbing routes, most of the campsites are full on weekends during the peak season (mid-May through mid-October) and are often full during the week in June. Because campsites are in high demand during peak season, Reserve staff would like to ensure that campers have every opportunity to plan ahead to obtain campsites, or to gain access and information about nearby camping opportunities outside of the Reserve. The indicator variable that would be monitored is the number of days that campsites are 95%–100% full, and the associated standard specifies that there would be no more than nine days when campsites are 95%–100% full during the peak season (mid-May through mid-October). Management strategies include improved information for pre-trip planning, providing information about Reserve and nearby camping facilities, encouraging camping during nonpeak times such as mid-week, placing informative signs at the entrance, fee stations, or at the visitor center when the campsites are full, and possibly providing incentives such as discounts at campsites for those who pre-plan or travel during nonpeak times.

Day and Overnight Visitor Conflicts

In addition to campsites filling up during peak season, conflicts between day and overnight visitors have become an issue in areas where there is minimal parking for both user groups. For example, because some of the current trailheads are located near campsites, day users will park at campsites and walk through the campsites to gain access to the trail. Some of these issues are addressed in the Rim development concept plan. Changes would include providing additional parking and access to trailheads so visitors would not need to walk through campsites to gain access.

Another day- and overnight-use conflict occurs when day visitors picnic in campsites and use overnight spots for day-use parking. The

indicator variable that would be monitored is the number of visitor complaints via comment cards and reports to camp hosts or rangers (about not being able to find a place to picnic or having someone park in their campsite spot). The standard has been set to no more than three complaints per day. Reserve staff would monitor the number of complaints related to day- and overnight-visitor conflicts. Management strategies include increased staff presence to guide visitors to appropriate locations, updated maps, and increased education about day- and overnight-use designations.

Vegetation and Soil Impacts Caused by Dogs at Climbing Staging Areas

The number of depressions caused by dogs digging at climbing staging areas has become an increasing concern. Some visitors bring dogs with them to climbing staging areas and then tie them to a post in the staging area while climbing. As a result, unattended dogs have impacted the vegetation and soils in and around the staging areas. Additionally, some territorial dogs have intimidated other visitors, preventing them from approaching these areas. Although there are no baseline data for the number of dog depressions dug, Reserve staff has estimated that there are currently about 2 to 15 depressions at most of the climbing staging areas. This level of impact has been deemed unacceptable, and Reserve staff would like to greatly reduce these impacts. Initial baseline condition assessment and monitoring is needed to establish a more thorough understanding of impacts, and annual monitoring would occur thereafter until conditions reach an acceptable level. The standard developed for all zones except for the Research Natural Area is that no more than 50% of climbing staging areas would have more than two dog depressions. For the Research Natural Area Zone, no more than 25% of climbing staging areas would have more than two dog depressions. To correct this problem, Reserve staff would like to increase education for dog owners. A new kiosk would be developed to inform owners about responsible recreational practices with dogs and remind visitors that leaving dogs unattended while climbing is unacceptable. More stringent strategies to

address these impacts could eventually include redesigning fences at staging areas, requiring a permit to bring dogs to the Reserve, and not allowing dogs, all of which would initiate restoration at impacted sites.

Nuisance Dogs

Dogs at the Reserve may be perceived as causing a nuisance when pet owners do not follow posted rules about appropriate recreational use with pets. Examples of nuisance include dogs off leash, fighting and biting dogs, dogs digging depressions, barking dogs, dog waste left on the ground, and dogs chasing cattle in public grazing allotments and on adjacent private lands. The Reserve staff would like to track these issues by documenting the number of received incident reports, written warnings, comment cards, and verbal complaints relating to dog incidents. In the Visitor Facilities and Access Zone, the standard specifies that no more than two citations (written warnings or complaints) should be issued per week during the peak season. In all other zones, no more than one citation should occur per week. Management strategies to help improve dog etiquette include continuing and improving education about dog rules and regulations, ranger patrols, and enforcement.

Vehicles Parked in Undesignated Areas on County and Reserve Roads

Vehicles parked outside of designated areas have become a problem on Reserve roads and on Cassia County roads that pass through the Reserve, especially during peak season. By monitoring and managing the number of vehicles parked in undesignated areas, the Reserve staff would gain a better understanding of damage to vegetation and soils, minimize safety hazards, reduce crowding and visual impacts on the City of Rocks Back Country Byway, and ensure compliance with parking regulations.

Managing undesignated parking along Cassia County roads would also require collaboration with and support from the Cassia County Commissioners. The board has acknowledged that parking and pedestrians along the road is

an issue of concern and has requested that the National Park Service create more adequate parking outside of the county right-of-way. Cassia County Road and Bridge Department is also working on a transportation study that will examine traffic counts and speeds in the area and could coordinate with the National Park Service on these efforts (Cassia County, McMurray email 2011).

Parking issues are addressed, in part, in the Rim development concept plan. Because there is limited access and parking at certain trailheads, the development concept plan would initiate parking lot redesign recommendations that would eventually lead to development of new parking spaces where appropriate. After the transportation study and parking lot redesign have occurred, the Reserve staff would initiate a program of monitoring the number of vehicles in undesignated areas during peak-use days (on weekends and holidays). For the county roads, the standard specifies that no more than five vehicles should be allowed to overflow onto the county road from designated parking areas. On the Reserve roads, no vehicles would be allowed to overflow from the designated parking areas. Additional management strategies for county roads include collaborating with and gaining consensus and support from county officials to manage parking, and educating the public about appropriate designated parking. Additional management strategies for Reserve roads include educating partners, installing temporary signs, adding parking bumpers to clearly designate parking spaces, increasing available parking where appropriate, and issuing parking citations if necessary.

Unsafe Driving Conditions

In addition to problems posed by vehicles parked along roads in the Reserve, some people perceive driving conditions to be unsafe. This perception could be related to a variety of factors, such as speed of vehicles; people walking, horseback riding, and biking on roadways with vehicles; and blind corners combined with people and vehicles sharing the roadway. Even when drivers are within the speed

limit, driving conditions may still seem unsafe, especially to visitors who are not used to speeds up to 55 miles per hour on dirt roads (the county speed limit is 55 miles per hour unless otherwise posted). Because the Cassia County Sheriff's Office reporting area is significantly larger than the Reserve itself, it can be difficult to determine if traffic violations occurred inside or outside the Reserve boundary upon review of the basic violation reports.

The following data has been provided by the sheriff's office for 2009–2011 and include references to the Reserve: 17 cases with reports, 9 citations, and 14 traffic stops. There have been four accidents reported since 2002, and the previously mentioned proposed transportation study should provide useful information pertaining to speeds on the roads.

The Reserve staff would monitor the perception of unsafe conditions by tallying the number of complaints received on NPS- and county-owned roads. The standard specifies that there would be no more than three visitor complaints per day on county roads, and no more than two visitor complaints per day on NPS jurisdictional roads. If conditions approach standards on the county roads, Reserve staff would contact the county sheriff's office for support. If conditions approach standards on NPS-managed roads, education would be increased to better inform visitors about regulations, a Reserve vehicle would be dispatched and made visible to minimize problems, speed limits would be posted in problem areas, and citations would be issued as necessary.

Incidents of Damage to Cultural Resources

Visitor use impacts on cultural resources include wear on historic structures, unintentional disturbances, and vandalism to archeological resources and historic structures. Cultural resources are nonrenewable, so impacts—especially those resulting from unintentional behaviors such as inadvertent disturbance or wear and tear, or intentional behaviors such as vandalism—must be minimized to the extent possible.

For indicators and standards related to cultural resource preservation, Reserve staff would refer to the protocols outlined in the condition assessments that are included in NPS cultural resource databases. These databases have measurable parameters that allow cultural resource specialists to determine the physical condition and integrity of park cultural resources, include a monitoring component, and they are updated periodically. The List of Classified Structures (LCS), Cultural Landscape Inventory (CLI), and Archeological Sites Management Information System (ASMIS) databases provide measures of the physical condition of a resource and its cultural/historical significance (documenting the character, material, and integrity of the cultural resource).

The List of Classified Structures is an evaluated inventory of all historic and prehistoric structures that have historical, architectural, and/or engineering significance within parks of the national park system in which the National Park Service has, or plans to acquire, any enforceable legal interest. Structures are constructed works that serve some form of human activity and that generally are immovable. They include buildings and monuments, dams, millraces and canals, nautical vessels, bridges, tunnels and roads, railroad locomotives, rolling stock and track, stockades and fences, defensive works, temple mounds and kivas, ruins of all structural types that still have integrity as structures, and outdoor sculpture.

The CLI database is a comprehensive inventory of all culturally and historically significant landscapes within the national park system. The Cultural Landscape Inventory records the location, historical development, existing conditions, and management categories for maintaining the landscape as a cultural resource. A condition assessment of the cultural landscape is updated every six years to ensure that the inventory record is complete, accurate, and reliable. The condition assessment describes the current condition of the landscape and any impacts that may have an effect on the resources that contribute to the significance of the landscape and recommends corrective

actions to stabilize and preserve the landscape. Each completed inventory is stored in the national CLI database in Washington, D.C., and in the regional database at the Olmsted Center for Landscape Preservation. The Cultural Landscape Inventory is accessible to the National Park Service through an intranet website.

The Archeological Sites Management Information System is a NPS database for the registration and management of park prehistoric and historic archeological resources. It supports archeological resources preservation, protection, planning, and decision-making by park managers, resource professionals, and the Washington Office. ASMIS records contain data on site location, description, significance, condition, threats, and management requirements for known park archeological sites. The indicator for human impacts to archeological resources and other cultural resources is based on existing monitoring protocols.

To assess resource conditions and the level of visitor-use impacts on cultural resources, staff would track the number of incidents of graffiti, ground disturbance, damage to structures, and loss of historical fabric. Incidents would be tracked by monitoring complaints, reports to rangers, and ranger observations. No more than an average of three incidences should occur over a five-year period with monthly monitoring. To ensure that this standard is maintained, visitor education and enforcement of park regulations would be continued, and closure of particularly vulnerable areas would be considered using fencing where appropriate. Increased patrols and ranger presence would also be considered for high-use areas where cultural resources are known to exist.

Noise around Campsites

Given the proximity of campsites to each other and high levels of visitor use at those sites, the number of complaints received about visitor-caused noise was established as a priority indicator. Visitor-caused noise can affect the natural soundscape by disrupting wildlife, and

it can significantly impact visitor experience. A 1998 survey of the American public revealed that 72% of respondents believed that providing opportunities to experience natural quiet and the sounds of nature was a very important reason to have national parks, while another 23% thought that it was somewhat important (Haas and Wakefield 1998). In another survey specific to park visitors, 91% of respondents considered enjoyment of natural quiet and the sounds of nature to be compelling reasons to visit national parks (McDonald, Baumgartner, and Iachan 1995).

Baseline conditions for much of the Reserve's soundscape were characterized through comprehensive acoustical monitoring in 2008 and 2009 (NPS 2010). This study determined current acoustical conditions at City of Rocks National Reserve. Results included measures of existing ambient levels, calculations of sound source durations, and estimates of natural ambient levels. It was determined that human-caused sounds were audible between 1.9% and 20.2% of the time, depending on the site. Vehicles, voices, and domestic animals were frequently audible, but aircraft was the largest contributor of human-caused sound. More specifically, commercial jets were audible between 1.8% and 18.6% of the time. These results confirmed that visitor-caused noise is not currently a parkwide issue. Therefore, Reserve staff established a soundscape indicator specific to campsites in order to address areas where noise has become an issue of concern. The Reserve staff would track the number of visitor complaints related to visitor-caused noise, particularly in the campgrounds, as logged by incident reports, general complaints, and comment cards. The standard has been set to no more than one report, citation, complaint, or warning per season. If conditions approach the standard, Reserve staff would increase education about the importance of natural soundscapes at the Reserve. Information could be shared via signs and kiosks, pamphlets, and on the ReserveAmerica campsite reservation system. In an effort to maintain and improve soundscapes near the campgrounds, rangers would patrol areas of concern and contact visitors who are creating noise in campsites.

Wait Time for Climbing Routes

Part of the significance of the Reserve is that it provides one of the highest quality granite face-climbing areas in the United States. The geological features—consisting of granite spires ranging in height from 30 to 300 feet—are internationally renowned for rock climbing. These spires, carved out of the landscape by wind, rain, and snow, feature textured rock that is ideal for climbing. With about 700 developed routes in the area (including routes in nearby Castle Rocks State Park), they span a broad spectrum of features and challenges that require a full range of technique and style not usually found in one climbing area. The Reserve offers a mixture of moderate and advanced climbs, often found side by side. Because of the popularity and proximity of routes, queuing at staging areas has become a priority indicator for monitoring in several key locations such as Bath Rock and Elephant Rock.

Reserve staff would monitor the number of groups waiting in line for climbing routes to ensure that visitors are having high-quality experiences and that resources are not being damaged due to high-density use. The standard specifies that no more than two groups would wait outside of the staging area at one time to climb a route. If conditions approach standards, management strategies would be employed. Strategies include encouraging climbers to wait in already disturbed areas, and creating educational materials to inform climbers about similar routes in other areas of the Reserve. Finally, rangers would rove climbing areas and encourage dispersed use on similar climbing routes in various areas of the Reserve.

Human Waste

Incidences of improperly disposed human waste have decreased since the establishment of the Reserve, due to the construction of restroom facilities in higher-use areas. There are still some locations, however, where visitors are disposing of human waste and toilet paper improperly. Ensuring that visitors dispose of waste properly would enhance the visitor experience, reduce impacts on vegetation, and create a healthy and safe environment for visitors at the Reserve. The

Reserve staff would track the number of human waste / toilet paper sightings via ranger patrol in problem areas and would monitor conditions twice a year. The standard specifies no more than one sighting of human waste or toilet paper in known problem areas. Management strategies to continue improving conditions include increasing awareness of how to access restrooms, education on Leave No Trace principles, and adding new restroom facilities if needed and appropriate.

LONG-TERM USER CAPACITY MONITORING

The staff would continue monitoring use levels and patterns throughout the Reserve. In addition, the Reserve staff would monitor these user capacity indicators. The rigor of monitoring the indicators (i.e., frequency of monitoring cycles and amount of geographic area monitored) might vary considerably depending on how close existing conditions are to the standards. If the existing conditions are far from exceeding the standard, the rigor of monitoring might be less than if the existing conditions are close to or trending toward the standard.

Initial monitoring would determine if the indicators are accurately measuring the conditions of concern and if the standards truly represent the minimally acceptable condition of the indicator. Reserve staff might decide to modify the indicators or standards and revise the monitoring program if better ways are found to measure changes caused by visitor use. Most of these types of changes should be made within the first several years of initiating monitoring. After this initial testing period, adjustments would be less likely to occur. Finally, if use levels and patterns change appreciably, Reserve staff might need to identify new indicators to ensure that desired conditions are achieved and maintained. This iterative learning and refining process is a strength of the NPS user capacity management program.

Mitigation Measures

See individual environmental impact analysis sections under “Chapter 5: Environmental Consequences.”

Applicable environmental impact avoidance, minimization, and mitigation measures would be implemented under a future selected alternative, and this has been taken into consideration in the environmental impact analysis. Future mitigation measures may also be developed in response to formal and informal consultation on proposed actions and may augment the listed measures.

NEEDED FUTURE STUDIES AND PLANS

Implementation of the actions and developments proposed within the GMP is dependent upon funding available at the time of need. The approval of this GMP does not guarantee that the funding and staffing needed to implement the plan would be forthcoming.

In addition to funding, implementation of the preferred alternative also could be affected by other factors. More detailed planning and environmental documentation may be completed, as appropriate, before some of the actions would be carried out.

The following list includes some of the plans and studies needed to implement the preferred alternative.

- Develop a resource stewardship strategy for natural and cultural resources
- Update the fire management plan, including a contingency plan to address high fire/erosion areas
- Update the grazing management plan
- Update the climbing management plan
- Prepare a soundscape management plan
- Develop an archeological management plan to manage the California Trail ruts
- Monitor and develop a treatment plan for features within the California Trail corridor

- Develop a long-range interpretive plan
- Develop a trails management plan
- Conduct an inventory of fragile rock features/pinnacles
- Develop a vegetation management plan
- Develop a wildlife monitoring plan
- Develop a soundscapes management plan
- Develop a plan to maintain and interpret the night sky
- Develop a treatment plan for California Trail features
- Create a design for a new equestrian staging area (at Bread Loaves or another location on the west side)
- Create a design for the Logger Springs Turnaround
- Design a hiking trail to link California Trail resources
- Create a design for the Smoky Mountain Campground expansion
- Create a design for the visitor contact station

Identification of the Environmentally Preferable Alternative

Implementing NEPA regulations promulgated by the Council on Environmental Quality (CEQ) require that agencies identify “the alternative or alternatives which were considered to be environmentally preferable.” The environmentally preferable alternative is “the alternative that causes the least damage to the biological and physical environment”; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 - 18038).

According to Director’s Order 12, through identification of the environmentally preferable alternative, the National Park Service and the public are faced with determining the relative merits of the choices before them as represented among the alternatives and must clearly state through the decision-making process what values and policies were used in reaching a decision.

“Environmentally preferable” is defined as the alternative that will promote the national environmental policy as expressed in section 101 of the National Environmental Policy Act, including:

- Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
- Ensuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserving important historic, cultural and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities; and
- Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (NEPA Section 101[b]).

As shown through the analysis below, the environmentally preferable alternative is alternative C.

Consistency with NEPA Section 101(b)

[C and D] Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations:

All alternatives (A–D) would fulfill this CEQ criterion because the National Park Service is required by law and policy to minimize its impacts on the environment and to preserve natural, cultural, and other park resources without impairment in its management of national parks, including City of Rocks National Reserve. All of the alternatives would result in consistency for ongoing management of the Reserve and would result in opportunities for

infrastructure to continue to be developed outside the Reserve (alternatives A and B) or outside the original boundary of the Reserve (alternatives C and D). Because alternatives C and D could add to the area included in the Reserve, including additional protection for the California Trail, the reason for its establishment, these alternatives would best meet CEQ criterion 1.

[B, C, and D] Ensuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings:

All alternatives would meet this CEQ criterion by minimizing impacts through implementation of mitigation measures, including impact avoidance and best management practices. Because alternatives B, C, and D would provide a safer way to access California Trail resources by providing a new trail to link these, they would improve opportunities for safe visitor experiences. Similarly, constructing a turnaround at the Indian Grove overlook and working with the county on road speed and parking issues would similarly benefit visitor experience. Therefore alternatives B, C, and D would best meet this criterion.

[C] Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences: Beneficial uses in all alternatives would include ongoing resource preservation and recreational use in the Reserve. Alternatives B, C, and D would offer the greatest beneficial effects on safety. Alternatives A and B would probably have the fewest overall impacts, whereas alternative C would probably include the greatest resource preservation and alternatives C and D would most improve visitor use opportunities. Therefore, alternative C would probably best meet this criterion.

[C] Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of

individual choice: Alternatives A–D would preserve historic, cultural and natural aspects of our nation’s heritage. Because the California Trail would be afforded greater protection in alternatives B–D, these alternatives would better meet this criterion. Of alternatives B–D, alternative C would best meet this criterion by providing for safety and by providing the largest California Trail Zone. Alternative C would also allow for a wide range of visitor use opportunities.

[C] Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities:

All alternatives would meet this criterion. Alternatives A, C, and D would greatly improve visitor services by providing an expanded visitor center and would offer more improvements over alternative B. Because alternative C would offer the most visitor services, especially for children and researchers by providing an outdoor education pavilion and cabins and an amphitheater, alternative C would best meet this criterion.

[B] Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources:

All alternatives (A–D) would meet this CEQ criterion because new construction would meet LEED standards to allow for silver or better certification. Of these alternatives, alternative B would offer a slight advantage for this criterion because it would employ the least construction, relying instead on the reuse of the existing visitor center house and on getting information to visitors via online media rather than through built facilities.

While all of the alternatives (A–D) meet all of the above criteria, alternative C best meets most of the criteria. Although alternatives B and D each meet one or more of the criteria best (alternative B best meets two of the criteria and alternative D best meets two of the criteria), alternative C best meets five of the six criteria. Therefore alternative C is the environmentally preferable alternative.

Actions and Alternatives Considered But Dismissed

- Under the National Environmental Policy Act and the CEQ memorandum, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations,” alternatives may be eliminated from detailed study based on the following reasons [40 CFR 1502.14 (a)]:
- Technical or economic infeasibility
- Inability to meet project objectives or resolve need for the project
- Duplicate other less environmentally damaging alternatives
- Conflict with an up-to-date valid plan, statement of purpose and significance, or other policy, and therefore would require a major change in that plan or policy to implement
- Environmental impacts are too great

The following alternatives or variations were considered during the planning process, but were rejected because they met one of the above criteria.

Technical Rock Climbing on the Twin Sisters Rock Formation

Because of cultural resource concerns, the climbing ban on Twin Sisters was an action proposed in the Reserve’s 1996 comprehensive management plan and later solidified in the 1998 *City of Rocks National Reserve Climbing Management Plan and Environmental Assessment*. The climbing closure on Twin Sisters was subsequently challenged by the Access Fund in November 1998. In 2000, the Chief U.S. Magistrate made summary judgments on the closure, ruling in favor of the Department of the Interior and the National Park Service.

Members of the GMP planning team met in 2006 for an internal review of the 1998 climbing management plan. During that meeting, the team discussed the climbing ban on Twin Sisters as part of a then-proposed amendment to the 1996 comprehensive management plan. The

planning team determined that there was no new information or overriding reason(s) to reopen Twin Sisters to climbing. In fact, one of the primary reasons for opposing the ban had been recently quelled by the opening of new multi-pitch climbs at Castle Rocks State Park. (When the ban was first imposed, Twin Sisters contained some of the few available multi-pitch climbs: the closing of these climbs was one of the main objections cited by those opposing the ban.)

In addition, the cultural resource concerns identified in the original ban are still present. The conclusion of the planning team, therefore, was to maintain the closure of Twin Sisters to technical rock climbing (Reserve 2006b). Opening the Twin Sisters rock formation to climbing was rejected because the closure is based on long-standing policy related to still-current concerns for protection of cultural resources, it has been in effect for more than 15 years, and it is supported by judicial review.

Eliminating the Research Natural Area

Preliminary comments on the alternatives included a desire by some members of the public to eliminate the Research Natural Area from the Reserve. They noted that the Research Natural Area did not serve a purpose and impacted landowners’ ability to graze livestock there. However, the Research Natural Area is steep and exhibits a rugged terrain with dense vegetation and forest with little livestock entry.

A field survey and report conducted in 2010 by Northwest Management, Inc., for the National Park Service concluded that the Research Natural Area continues to meet the purpose for which it was originally established and recommended RNA expansion (see the “City of Rocks National Reserve—Research Natural Area” section under “National Park Service Plans” in “Chapter 1: Introduction and Background”). Because of its designated purpose, the Research Natural Area is not considered to be part of any grazing allotment and grazing in a research natural area is not allowed according to NPS policy. There is, however, a slight overlap on the west side of the

Research Natural Area between one allotment and the RNA boundary. Under this GMP, the overlap would be corrected in alternatives B, C, and D by working with the permittee. As a result of the study, the Research Natural Area was retained.

Immediately Eliminating Grazing

Although the legislation establishing the Reserve is silent as to grazing, there was considerable discussion about its importance to the area in the hearings that occurred preceding the Reserve's establishment and, as a result, it was presumed compatible with the intent of the Reserve, especially associated with maintaining the "historic rural setting" that does appear in the legislation establishing the Reserve. Therefore grazing on public lands in the Reserve has occurred since its establishment.

In the 25 years since establishment, however, grazing has also continued to occur on private lands within the Reserve, effectively maintaining the historic rural setting. Because the Reserve is unlikely to acquire all of the private lands where grazing currently occurs, this use is expected to continue. Concurrently, grazing on public lands has continued to have adverse effects on vegetation, water quantity, wildlife and wetlands and to some extent on cultural resources. Therefore to improve natural and cultural resources stewardship and to reduce overall impacts on resources, this plan includes an alternative to phase out grazing over the next 20 years and/or the lifetime of the GMP. Immediately phasing out grazing, however, would have greater adverse socioeconomic and other impacts on current permittees and park operations and has thus been dismissed from additional consideration.

Relocating Camping along the Rim

Preliminary comments on the alternatives suggested relocating camping along the rim to the south side of the road. This action was considered; however, it was rejected because there is inadequate space to relocate the current number of campsites to the south of

the road and because relocating this number of campsites would adversely affect views from the California Trail. Unlike other camping located within the viewshed, this would be noticeable and would contain a variety of impacts that could not be screened. The actions described in the Rim development concept plan (as proposed in alternatives B, C, and D) would improve the camping experience, including increasing safety and resolving day-use and overnight use conflicts (see "Appendix D: Rim Development Concept Plan for City of Rocks National Reserve"). Therefore, this proposal was rejected because relocating the campsites along the rim would have greater impacts than other alternatives that would offer similar benefits.

Providing Backcountry Standards

The planning team considered crafting backcountry user capacity standards in the Indian Grove area, which is a permitted backcountry camping area. Analysis of areas within the Indian Grove area located more than one mile from a trailhead was performed, but because there is little area within the Reserve that is located more than one mile from a trailhead, development of backcountry standards was considered but dismissed.

Removing Camping within the California Trail Zone

Camping is considered a traditional use and is compatible with the national historic landmark because it occurred during the historic period (1833–42). The location of the group camp and other campsites within the California Trail Zone would be out of the road corridor viewshed; therefore camping would continue to be allowed.

Preventing Rock Scrambling within the California Trail Zone

Rock scrambling, unlike modern-day climbing, is considered an historic use. Therefore rock scrambling is compatible with and would be permitted within the California Trail Zone, except where prohibited on inscription rocks.

Removing Fixed Climbing Routes in the Research Natural Area Zone

Although the Research Natural Area is meant to be a natural area, over time some fixed climbing routes were established along its periphery. Fixed routes would be allowed to remain because bolting improved safety in some areas. Fixed routes also direct climbs so that attendant impacts are confined. Because the Research Natural Area is meant to be a study area, however, no new fixed anchor proposals would be accepted. Traditional climbing and sport climbing of existing bolted routes would continue to be allowed as long as it does not interfere with ongoing research activity.

Allowing Recreational Motorized Use in the Reserve

Because the main Reserve roads are owned and maintained by Cassia County, recreational motorized vehicles (all-terrain vehicles, utility task vehicles, and dirt bikes) are allowed, and the National Park Service and the Idaho Department of Parks and Recreation do not have the authority to restrict these.

Eliminating Employee Housing

Initially, employee housing at the Castle Rocks State Park Administrative Unit was provided because there were few available inexpensive rentals and homes for purchase in surrounding local communities. Although the action alternatives propose working with local communities within commuting distance of the Reserve, existing and planned employee housing would continue to be provided because there is still too little affordable housing available in the surrounding communities.

Developing a Replacement Visitor Center within the Existing Reserve Boundary

NPS *Management Policies 2006* state that “whenever feasible and when authorized by Congress, major park facilities—especially those that can be shared with other entities—should be developed outside park boundaries”

(§9.1.1.2, “Integration of Facilities into the Park Environment”). The reasons for this are many, but in the case of City of Rocks National Reserve, siting a visitor center outside the Reserve would have greater beneficial and fewer adverse effects than locating it within the current Reserve. Locating a visitor center outside the boundary would reduce construction within it, thus having fewer impacts, and it would increase choices for visitors by allowing the visitor center to serve both the Reserve and Castle Rocks State Park. This action would also fulfill another section of *Management Policies 2006* that states: “where possible, appropriate, and authorized, the Park Service will cooperatively establish and maintain administration/information facilities with other federal, state, or local entities.”

The Idaho State Historic Preservation Office has concerns about locating any development in the Reserve within the national historic landmark and especially within view from the California National Historic Trail. In addition the remaining areas of the Reserve not in the national historic landmark are small and would not be suitable to place the necessary infrastructure that a visitor center would require. Although the current Reserve boundary does not contain a suitable location for a visitor center without major adverse impacts, if the boundary was modified as called for by alternatives C or D, the proposed visitor center in those alternatives would then be within the authorized boundary of the Reserve.

Constructing Equestrian Facilities at Other Locations

Although several locations other than Bread Loaves or Elephant Rock were considered for providing equestrian facilities, these either did not have enough space or would have greater impacts, had soil compaction or water resource issues, or they would not improve the ability of the Reserve to improve equestrian access to the west side (they did not meet the identified need). Therefore these other locations were dismissed from further consideration.

Providing an Escape Route for Smoky Mountain Campground

Under alternatives C and D, Smoky Mountain Campground is proposed to become part of the Reserve. If this occurs, this area would be included in an updated fire management plan for the Reserve. Current IDPR plans associated with the area and public comments during scoping have identified safety issues including the potential need for escape should a wildfire threaten the site. Based on consultation with emergency response agencies, a route has been identified and has been incorporated into campground operations protocol. Because, however, the campground area continues to be managed by the Idaho Department of Parks and Recreation through their R&PP BLM lease, proposed actions associated with the Smoky Mountain Campground are limited to identifying the overall vision for the site. As a result, this is an operational and implementation issue, rather than a GMP issue. As a result, developing an escape route for Smoky Mountain Campground has been dismissed from further consideration.

Retaining Circle Creek Impoundment

Retaining the Circle Creek impoundment #1 was considered and dismissed by the planning team because analysis of the Circle Creek impoundment and irrigation network has indicated that although it may have functioned in the past, it has not been in use for a long time and does not possess local or regional integrity associated with its former use. Furthermore, it no longer functions as it was initially conceived and built. Circle Creek passes through a culvert under the City of Rocks Road near the Nicholson Ranch house. Stream flow is then diverted into an irrigation channel, constructed in the early 1950s that subsequently blew out in the mid-1960s, returning stream flow back into Circle Creek. Repairs were never made to the irrigation system and the ditch—now deeply incised with unstable side walls and ingrown with vegetation—presents a fall hazard to hikers and equestrian riders who may step away from the California Trail hiking trail.

Because it is located within the boundary of the national historic landmark and because it is an important riparian area, ecological restoration of the impoundment site would have long-term beneficial impacts on both natural and cultural resources and no effect on historic resources. Restoration of the irrigation network to natural slopes would mitigate a public safety issue. Retaining the impoundment and irrigation network would continue to adversely affect both natural and cultural resources (see the “Physical Resources: Impacts on Water Resources” section in “Chapter 4: Environmental Consequences” and “Cultural Resources” in the “Actions Common to All Alternatives” in this chapter).

Expanding the California Trail Zone to Encompass the Twin Sisters Area

Expanding the California Trail Zone to encompass the Twin Sisters area was considered but dismissed because the proposed Visitor Facilities and Access Zone allows the continuation of existing uses, such as camping. As noted above, camping is considered compatible with the California Trail. There may be a need to expand parking in this area for public access to nearby features. If impacts from use of the campsites by large vehicles continue to occur, the Reserve could choose to restrict the length of vehicles for these campsites (see “Technical Rock Climbing on the Twin Sisters Rock Formation” in this section).

Returning the Leased Lands to the BLM

Returning leased lands to the Bureau of Land Management by the Idaho Department of Parks and Recreation was considered but dismissed. The Idaho Department of Parks and Recreation has assumed a large financial investment on the leased BLM lands in the development of a campground for visitors. Also, the development of facilities outside of park units with partners is in keeping with NPS policies.

SUMMARY OF COSTS

The costs of implementing the alternatives are summarized in table 17. To estimate costs, general assumptions were made regarding the amount and size of development. These assumptions were then carried across all alternatives so the alternatives could be compared. Costs identified in the draft GMP are not intended to replace more detailed consideration of needs, sizes, and amounts of future development, nor should these costs be used as a basis for funding requests or budgeting. The costs represented below only identify NPS capital development costs and include contributions by the Idaho Department of Parks and Recreation, where appropriate, that would probably offset costs.

The GMP is a long-term plan (15–20 years). Within the framework of the plan, Reserve managers would take incremental steps to reach management goals and objectives. Although some of the actions could be accomplished with little or no funding, some actions would require more detailed implementation plans, site-specific environmental impact analysis, and additional funds. The National Park Service and the Idaho Department of Parks and Recreation would actively seek alternative sources of funding, but there is no guarantee that all the components of the plan would be implemented during that time frame.

The National Park Service will also evaluate proposed facility investments prior to project approvals using the best scientific information available related to climate change and other possible scenarios to ensure the long-term sustainability of these investments. Due to potential vulnerability of some of the park's facilities, it is feasible that the National Park Service may conclude that such investments would be unwise. In such a case, other options for meeting the need could be considered, or the National Park Service could elect not to pursue implementation of that project.

TABLE 17. SUMMARY OF COMPARATIVE COSTS*

	Alternative A	Alternative B	Alternative C	Alternative D
Annual Operating Costs				
**				
Existing Base Funding	\$698,647	\$698,647	\$698,647	\$698,647
New Personnel Costs	-	\$140,000	\$240,000	\$240,000
Total Annual Operating Costs	\$698,647	\$838,647	\$938,647	\$938,647
Personnel	FTE	FTE	FTE	FTE
Permanent	7	10 (+3)	12 (+5)	12 (+5)
One-time Costs				
Total Existing Project Costs	\$43,500	\$43,500	\$43,500	\$43,500
One-Time Nonfacility Costs				
Program Support	\$43,500	\$225,000	\$369,000	\$284,000
Priority 1 ***		\$175,000	\$180,000	\$250,000
Priority 2		\$50,000	\$189,000	\$34,000
Resource Management		\$229,000	\$30,000	\$30,000
Priority 1		\$110,000	\$30,000	\$30,000
Priority 2		\$119,000	0	0
Total One-Time Nonfacility Costs	\$43,500	\$454,000	\$399,000	\$314,000
One-Time Facility Costs				
New Construction	\$4,600,000	\$380,000	\$1,040,000	\$356,000
Priority 1		\$200,000	\$200,000	\$195,000
Priority 2	\$4,600,000	\$180,000	\$840,000	\$161,000
Facility Rehabilitation	\$2,512,000	\$2,730,000	\$5,120,000	\$10,080,000
Priority 1	\$2,512,000	\$1,050,000	\$4,090,000	\$1,050,000
Priority 2		\$1,680,000	\$1,030,000	\$9,030,000
Total One-Time Facility Costs	\$7,112,000	\$3,110,000	\$6,160,000	\$10,436,000
Total Priority 1 Costs	\$43,500	\$1,535,000	\$4,500,000	\$1,525,000
Total Priority 2 Costs	\$7,112,000	\$1,995,000	\$2,059,000	\$9,225,000
Total One-Time Costs	\$7,155,500	\$3,573,500	\$6,602,500	\$10,793,500
Deferred Maintenance Offset	\$23,000	\$23,000	\$23,000	\$23,000

*Figures are rounded and are FY 2012 dollars.

**Does not include funding for Castle Rocks State Park, although some costs support both the Reserve and the state park: for example, some staff and the visitor center.

***Actions in alternatives B–D would be prioritized or ranked in importance as either high priority (1) or low priority (2). High priority actions address immediate threats and needs (requirements by mission, policy, and purpose) or address promises made in the past to the public, such as development of an equestrian staging area. Low priority actions address visitor opportunities and experiences, such as enhanced facilities as funding allows and could be sustained.

Program Support represents costs such as development of plans (long-range interpretive plan, cultural and natural resource plans), technology, grants or other program support.

Summary of Alternatives

“Table 18. Summary of Alternatives” summarizes the individual actions for each alternative, including those actions that are common to all the alternatives.

TABLE 18. SUMMARY OF ALTERNATIVES				
Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Alternative Concept	Alternative A: the No Action Alternative would assume that current management, programming, facilities, staffing, and funding would generally continue at their current levels and that existing plans would be implemented.	Alternative B: Silent City of Rocks would focus on the spectacular scenic quality, geology, biological richness, and cultural landscape experienced by past and present visitors to emphasize a backcountry-type visitor experience that would allow for self-discovery within a minimally developed western outdoor environment.	Alternative C: A Stage for Stewardship (preferred alternative) would protect resources through research activities, educational opportunities, and partnerships by emphasizing the national significance of the Reserve.	Alternative D: Treasured Landscapes Inspiring Stories would tell the stories of the Reserve through the people who pass through, live, and recreate here by focusing on the California Trail and the ranching heritage and by emphasizing a frontcountry and day-use experience with more formal and structured recreational opportunities and programs.
Natural Resources				
Primary Concept	Continue high-quality resource preservation and protection. Focus on inventory and monitoring working with the UCBN I&M program. Continue to conduct research and resource projects, inventories, and monitoring.	Same as alternative A, plus increase public understanding of resources through the application and dissemination of research. Develop a resource stewardship strategy to guide natural resources management.	Same as alternative A, plus increase public understanding of resources through the application and dissemination of research. Work with partners to advocate for natural processes on lands throughout and adjacent to the Reserve regardless of ownership. Emphasis on stewardship within a larger functioning ecosystem, connectivity on a landscape scale. Develop a resource stewardship strategy to guide natural resources.	Same as alternative A, plus develop a resource stewardship strategy to guide natural resources.

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Climate and Air Quality	<p>Maintain current meteorological monitoring activities. Minimize air pollution from Reserve operations and continue to collect weather climate information.</p> <p>Continue to interpret and monitor effects of human-caused climate change in the Northern Basin and Range Province and work toward increasing fuel and energy efficiency.</p>	<p>Maintain meteorological monitoring activities and conduct periodic particulate matter monitoring. Raise awareness of air contaminant sources within and near the Reserve's airshed. Minimize air pollution from Reserve operations through public outreach and education.</p> <p>Same as alternative A for climate change, plus promote minimal development or rehabilitation of facilities to lower facility-related energy and carbon footprint. Maximize energy efficiency, conservation, and sustainability associated with new development. Facilitate research in the Research Natural Area to study impacts of climate change.</p>	<p>Same as alternative B.</p> <p>Emphasize enhanced research opportunities on landscape-scale natural resource topics such as climate change. Facilitate research in the Research Natural Area to study climate change and adaptation. Design facilities and transportation options with sustainability and low carbon footprint.</p>	<p>Same as alternative C for air quality.</p> <p>Same as alternative B for climate change, plus encourage commercial visitor services guides to use vehicles with alternative fuels to limit emissions within the Reserve and at Castle Rocks State Park. Encourage activities such as walking and hiking rather than driving.</p>
Air Quality (Common to All)	Encourage the state of Idaho to designate the City of Rocks National Reserve as a Class I area instead of Class II, because redesignation would improve protection of air quality from major new sources of air pollution. Incorporate outreach and education regarding existing and potential air pollution impacts on the Reserve into all action alternatives.			
Water Quality (Common to All)	Continue to work with the Idaho Department of Environmental Quality, Idaho Department of Fish and Game, the NPS UCBN I&M Program, and the U.S. Fish and Wildlife Service to monitor water quality.			
Geology and Soils	<p>Conduct inventory of pinnacles and sensitive rock features in the national natural landmark.</p> <p>Mitigate soil erosion using current best management practices.</p>	<p>Same as alternative A for geology.</p> <p>Improve soil drainage on existing roads and trails by facilitating sheet flow. Use best management practices to minimize erosion. Develop road standards for Reserve roads on disintegrating granite soils and work with county to improve standards on county maintained roads.</p>	<p>Work with partners to update the inventory of pinnacles and granite spires in the national natural landmark.</p> <p>Same as alternative B for soils.</p>	<p>Same as alternative C for geology.</p> <p>Same as alternative B for soils.</p>

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Vegetation and Fire	<p>Use the invasive plant management plan to refine park priority areas for control of nonnative invasive plants. Develop a vegetation management plan.</p> <p>Update the fire management plan to reduce the damaging impacts of unwanted wildfire and identify where post-wildfire emergency stabilization and rehabilitation may be required to mitigate impacts from wildfire to the Reserve's resources.</p>	<p>Same as alternative A for vegetation.</p> <p>Same as alternative A for fire, plus update the fire management plan to consider a full range of fire management strategies. Identify areas where high fire intensity and post-fire erosion events could affect infrastructure due to increased water runoff and highly erodible granitic soils.</p>	<p>Work with partners, neighbors, and volunteers to implement the invasive plant management plan to refine park priority areas for control of nonnative invasive plants. Develop a vegetation management plan for the Reserve.</p> <p>Same as alternative B for fire.</p>	<p>Alternative D: Treasured Landscapes Inspiring Stories</p> <p>Same as alternative C for vegetation.</p> <p>Same as alternative B for fire.</p>
Wildlife	Maintain current levels of wildlife inventory activities and conduct limited monitoring as needed, or as indicated by the UCBN I&M network.	Conduct a systematic wildlife inventory. Develop and implement a monitoring plan to detect population change and to guide management. Collaborate with partners to determine the feasibility of reintroducing extirpated animals.	Same as alternative B, plus involve partners and agencies in a wildlife inventory of the larger landscape surrounding the Reserve. Seek funding to address monitoring questions related to the status and trends of wildlife species composition and to research topics related to status and trends of Idaho Sensitive Species, threatened and endangered species and extirpated species.	Same as alternative A.
Soundscapes and Lightscapes	Consider additional monitoring of soundscapes in other areas of the Reserve and develop a long-term monitoring protocol. Work cooperatively to reduce reflective light using best management practices on adjacent state lands. Conduct inventory of night sky quality and characteristics in the Reserve.	<p>Same as alternative A for soundscapes, plus prepare and implement a soundscapes management plan to protect the natural sounds. Consult with the Department of Defense to reduce noise impacts from military overflights.</p> <p>Same as alternative A for lightscapes, plus work with the NPS Night Sky program to develop a plan to maintain and interpret the night sky.</p>	<p>Same as alternative B for soundscapes.</p> <p>Same as alternative B for lightscapes.</p>	<p>Same as alternative B for soundscapes.</p> <p>Same as alternative B for lightscapes.</p>

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Cultural Resources				
Primary Concept	Continue high-quality resource preservation and protection. Continue to conduct research and resource management projects, inventories, and monitoring as opportunities arise. Preserve California Trail-era resources associated with the national historic landmark. Work closely with Shoshone-Bannock Tribes to continue their traditional activities within the Reserve, including pinyon nut gathering.	Same as alternative A, plus increase the understanding of cultural resources through the application and dissemination of research. Develop a resource stewardship strategy to guide cultural resources.	Promote and ensure long-term stewardship and preservation through active management and increase the understanding of cultural resources through the application and dissemination of research. Conduct research and resource management projects, inventories, and monitoring and work with landowners within the Reserve on non-NPS owned land. Preserve California Trail-era resources associated with the national historic landmark. Include an additional 1.1 mile of the California National Historic Trail within the new Reserve boundary to the east. Develop a resource stewardship strategy to guide cultural resources.	Provide visitors a direct experience of the cultural history of the area. Focus on stabilization and preservation treatments to enhance interpretation of historic structures and cultural landscape features. Preserve California Trail-era resources associated with the national historic landmark. Include an additional 1.1 mile of the California National Historic Trail within the new Reserve boundary to the east. Develop a resource stewardship strategy to guide cultural resources.

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Archeology	Conduct archeological projects to research, identify, and document resources. Continue surveys and testing prehistoric and historic sites to provide information on early occupation of City of Rocks.	<p>Same as alternative A, plus provide waysides and self-guided materials to promote visitor understanding of archeological resources. Develop an archeological management plan to manage California Trail ruts.</p> <p>With partners, develop an archeological district showing management zones for known archeological resources to ensure appropriate stewardship of prehistoric sites and isolated artifacts.</p>	<p>Same as alternative A, plus encourage participation in the identification, documentation, and research of archeological resources within the Reserve. Conduct hands-on investigation and research of archeological resources in collaboration with partners. Promote cooperation with partners and universities to improve understanding of early human use and adaptation in the region. Develop an archeological management plan to manage California Trail ruts.</p> <p>With partners, develop an archeological district showing management zones for known archeological resources to ensure appropriate stewardship of prehistoric sites and isolated artifacts.</p>	Same as alternative A, plus conduct archeological projects to research, identify, and document resources. Conduct demonstration projects to promote visitor understanding about archeological resources. Develop an archeological management plan to manage California Trail ruts.
Cultural Landscape	Document features associated with California Trail corridor and ensure they remain in a good condition through appropriate preservation treatment. Work in partnership with private landowners within the Reserve and stakeholders to clarify the route of the California Trail corridor. Where appropriate, continue to maintain and preserve features associated with mining, homesteading, and ranching.	<p>Same as alternative A, plus conduct condition assessment and evaluate and monitor features associated with California Trail corridor.</p> <p>Develop a treatment plan for features associated with the California Trail corridor and ensure they remain in good condition through appropriate preservation treatment.</p> <p>Preserve and interpret historically important activities and features associated with mining, homesteading, and ranching on public land.</p>	Same as alternative B, plus work with partners to research the potential for establishing a historic district associated with the homesteading era throughout the larger valley landscape.	Same as alternative B for cultural landscapes.

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Museum Collections (Common to All)	Continue to curate and store museum collections at Hagerman Fossil Beds National Monument in the paleontological laboratory and collection facility.			
Circle Creek Impoundment Area (Common to All)	Remove the existing historic water impoundment #1 at Circle Creek and restore the riparian area to natural conditions as seen by California Trail emigrants. This action is consistent with the national historic landmark designation and its focus on the California Trail era.			
Special Uses and Designations				
Grazing	<p>Update the current grazing management plan to reflect new acquisition of private lands. Limit livestock grazing to those management zones identified in the Reserve's 1996 comprehensive management plan. Keep total animal unit months to the 1991 level of use. Reduce or modify if necessary for the protection of resources.</p> <p>Prohibit grazing in the Research Natural Area and systematically eliminate grazing in wetland and riparian areas.</p>	<p>Update the current grazing management plan. Allow livestock grazing in all management zones identified in this GMP except for the Research Natural Area Zone. Reduce grazing over time as permittees discontinue requests for permits due to changing business models or abandonment. Expect total head and animal unit months to decrease over time through attrition (initiated by permittees not Reserve management). Reorganize allotments, as opportunities arise, to achieve maximum benefits for resources and emphasize increased protection of the California Trail Zone. Reduce or eliminate cattle grazing in the Visitor Facilities and Access Zone.</p> <p>Systematically eliminate grazing in wetland and riparian areas.</p>	<p>Update the current grazing management plan. Eliminate livestock grazing over time on a voluntary basis within the life span of this GMP. Facilitate removal of grazing by establishing a voluntary federal grazing permit buyout program to allow permittees to exchange their permits for compensation from conservation organizations.</p> <p>Emphasize protection and enhancement of the Research Natural Area and wetland and riparian areas.</p>	<p>Update the current grazing management plan. Work with permittees to provide interpretive opportunities and participation in livestock grazing management activities. Continue to renew grazing permits in all zones, except for the Research Natural Area Zone, unless there is permittee abandonment or consistent failure to comply with conditions of the permit. Consider removing pasturing of cattle from the Visitor Use and Access Zone where possible.</p> <p>Systematically eliminate grazing in wetland and riparian areas.</p>

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Research Natural Area	Maintain the existing 312-acre RNA boundary and continue to manage for outstanding features, processes, diversity, and values. Modify existing allotment along the western boundary of the Research Natural Area by working with permittee to remove overlap of grazing allotment from the Research Natural Area.	Refine the boundary of the Research Natural Area to conform to landscape features. Add three small areas to the south and a high-elevation valley to the northwest for a total of 485 acres. Modify existing allotment along the western boundary by working with permittee to remove overlap of grazing allotment from the Research Natural Area.	Refine the boundary of the Research Natural Area to conform to landscape features. Add three small areas to the south and a high-elevation valley to the northwest and expand the RNA boundary to the southeast to include additional species habitat for some Idaho Sensitive Species. The expansion of the Research Natural Area would total 693 acres. No grazing allotments would be affected. Modify existing allotment along the western boundary by working with permittee to remove overlap of grazing allotment from the Research Natural Area.	Same as alternative B.
Historical Preservation Zone (Common to All)	Recommend that Cassia County extend the Historical Preservation Zone to cover the entire Reserve to fully protect its cultural and natural resources. The Historical Preservation Zone limits existing landowners to one residence and land use consistent with that of 1988 and earlier. A portion of the southeast section of the Reserve was left out in the original zoning, and it is this section that the Reserve would propose including.			
Section 36 (Common to All)	Maintain Section 36 as a state-owned parcel within the Reserve. Section 36 of the Reserve was designated a state park in 1957 (called City of Rocks State Park) and is technically a state park within the National Reserve.			
Hunting and Gathering (Common to All)	The Reserve would continue to allow noncommercial pinyon nut gathering (as outlined in the Superintendent's Compendium and 36 CFR Section 2.1) and hunting (as regulated by Idaho Department of Fish and Game).			
Hunting and Trapping (Common to All)	Work with the Idaho Department of Fish and Game to better educate hunters and trappers on areas available within the Reserve and to establish sustainable levels of hunting. Hunting and trapping within the Reserve are allowed by legislation under the jurisdiction of the Idaho Department of Fish and Game. It is permitted within certain public areas of the Reserve and within private lands in the Reserve with prior permission of the landowner.			
National Natural Landmark (Common to All)	Update the NNL designation to encompass other significant features in the Reserve.			
National Historic Landmark (Common to All)	Update the NHL designation to encompass other significant features in the Reserve.			
National Scenic Byway (Common to All)	Encourage Cassia County to support national scenic byway designation of the existing City of Rocks Back Country Byway. If nationally designated, federal funding for byway projects could be sought.			

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Interpretation and Education				
Primary Concept	Continue to provide interpretative and educational opportunities at the existing visitor center as well as through waysides, kiosks, brochures, special events, and the internet. Maintain current wayside exhibits to NPS standards. Continue to work with other organizations that use the Reserve as a place to teach.	Same as alternative A, plus provide more self-guided materials and interpretive and educational opportunities at the visitor contact station, waysides, kiosks, and internet. Provide less emphasis on staff presence, guided programs, and tours. Educate visitors with information provided by researchers.	Same as alternative A, plus use Reserve as a classroom to study the Northern Basin and Range ecosystem. Provide more interpretative and educational programs primarily through the proposed visitor center, the outdoor learning center, guided walks and talks, and exposure to the Reserve's environment. Educate visitors with information provided by researchers. Offer interpretation and education by other non-NPS entities and partners. Immerse visitors in stewardship activities that contribute to preservation of nationally significant resources.	Expand beyond the actions of alternative A to feature on-site personal interpretative and educational programs to offer special events, living history, heritage tourism for group activities/packages, guided walks, talks, trail rides, tours, and general outreach. Allow opportunities for visitors to engage in on-site living history activities and demonstration projects to learn about resources, including archeology. Focus programs on the California Trail and ranching heritage. Provide some of these activities at the visitor center and/or through commercial visitor services.
Interpretive Programs	Continue to conduct a variety of programs and special events, and provide educational materials and activities for visitors. Continue to interpret mining, homesteading, and ranching features to the public on a limited basis as opportunities arise.	Same as alternative A, plus incorporate tribal perspectives and neighbors' stories about the Reserve into interpretive programming. Support an extended outreach program to schools. Develop a long-range interpretive plan. Provide off-site interpretive programs.	Same as alternative A, the focus would be on immersion, hands-on experiential learning, and environmental stewardship. Disseminate natural, cultural, and archeological research findings through various on-site and outreach programs. Integrate learning and research through living labs, institutes, and field schools. Partner with federal, state, tribal, and private partners, such as universities and institutes. Conduct programs that reflect and educate visitors about the Reserve's national significance. Develop a long-range interpretive plan.	Expand interpretive programs to promote experiential and heritage learning and recreation, including outreach to youth and new visitors. Emphasize the natural and cultural history of City of Rocks including site-specific interpretation. Provide guided walks and talks on a variety of themes. Include increased staff-led and nonprofit-led immersive experiences for a fee. Expand Parks as Classrooms program and other satellite broadcasts on park themes. Develop a long-range interpretive plan.

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Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Youth	Continue to sponsor student internships, Junior Ranger programs and the Youth Conservation Corps programs, and other special events and programs for youth. Provide winter and summer youth day camps, pending staffing and funding.	Same as alternative A, plus offer age-appropriate outdoor learning opportunities for recreation that provide youth with challenging experiences in a supportive environment.	Same as alternative A, plus provide youth-focused classes, field trips, and programs at the outdoor learning center. Encourage researchers to deliver programs about their research to a variety of age groups.	Include those activities in alternative A but expand to engage youth and new visitors in programs and opportunities such as Parks as Classrooms or a climbing school. Encourage youth to participate in citizen stewardship activities such as trail maintenance or other park projects.
Youth Programs (Common to All)	Continue to offer youth programs such as the Youth Conservation Corps program and day camps, student internships, Junior Ranger programs, and other special events.			
Visitor Experience				
Primary Concept	Continue current visitor service levels. Provide for a diversity of uses consistent with administrative policies and resource protection.	Provide for a backcountry-type visitor experience emphasizing solitude and self-discovery.	Engage visitors in research, learning, and stewardship opportunities through new research, science, and education programs and facilities.	Emphasize a frontcountry, day-use experience with a focus on group activities and formal education.
Recreational Opportunities	Continue to provide opportunities for traditional recreational activities such as hiking, biking, horseback riding, bird watching, climbing, and pinyon nut gathering. Update the climbing management plan.	Same as alternative A.	Same as alternative A.	The current array of recreational opportunities would be expanded to include additional day-use activities, such as more walks and hikes, horseback riding, and biking opportunities.
Trails	Maintain the current trail system.	Same as alternative A, plus develop a trails management plan to improve trails within the Reserve. Develop a new trail for hiking, bicycling, and equestrian use within the Reserve beginning near the Nicholson Ranch and connecting with the Tea Kettle Trail to allow visitors to experience the California Trail corridor. Explore the creation of new trail connections in partnership with adjacent land management agencies. Consider a possible trail connection to Castle Rocks State Park and the USFS Independence Lake area.	Same as alternative B except that a formal trail would be developed to the summit of Smoky Mountain from the Smoky Mountain Campground in cooperation with the Bureau of Land Management.	Same as alternative C.

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Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Climbing	Continue to manage climbing under the 1998 climbing management plan.	Same as alternative A, plus update the climbing management plan.	Same as alternative B.	Same as alternative B.
Climbing (Common to All)	Continue the ban on technical climbing at Twin Sisters.			
Equestrian Staging	Continue to provide equestrian camping and staging at Smoky Mountain Campground and at the Juniper campsite within the Reserve.	Same as alternative A, plus develop an equestrian staging area for parking and staging horse trailers in the Reserve near the Bread Loaves intersection (or at Elephant Rock) to access the west side of the Reserve.	Same as alternative B.	Same as alternative B.
Commercial Visitor Services				
Commercial Services	Maintain the overall type and level of permitted guides and outfitters currently operating within the Reserve.	Increase commercial services to provide for more youth camps, climbing, and horseback riding opportunities.	Same as alternative A, plus encourage the development of a privately operated shuttle service by a private entity linking the Reserve and Castle Rocks State Park.	Allow for more commercial visitor services and activities. Include fee interpretation and education programs provided by partners and other groups. Could provide opportunities for on-site living history cultural activities and demonstration projects.
Visitor and Administrative Facilities				
Reserve Campsites	Continue to offer camping opportunities within the Reserve through a reservation system. Retain the current numbers of sites and camping areas within the Reserve.	Reconfigure camping in the Reserve to address safety and resource issues. Implement the recommendations of the Rim development concept plan.	Same as alternative B.	Same as alternative B.
Visitor Facilities	Maintain existing waysides, kiosks, exhibits, and vault toilets. Replace or add to these as needed to support existing or planned operations.	Same as alternative A, but develop additional waysides and exhibits based on interpretive themes and various other topics to promote self-learning and discovery. Construct additional unstaffed kiosks with information at Bath Rock and at Smoky Mountain Campground to improve orientation and provide self-guided materials about the Reserve.	Develop additional waysides and exhibits based on interpretive themes and various topics to promote education, research, and protection of nationally significant resources.	Develop additional waysides and exhibits based on interpretive themes and other relevant topics. Construct additional vault toilets and additional parking areas as needed for increased day use activities.

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Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Reserve Roads	Continue to provide access for motorized and nonmotorized transportation. Retain existing roads.	Same as alternative A, plus develop a turnaround area within the Reserve boundary at the north end of Logger Springs Road adjacent to USFS land for safety and resource protection.	Same as alternative B.	Same as alternative A, plus formalize parking at the Indian Grove Overlook off Logger Springs Road with a designated area and parking spaces to safely accommodate a few cars and enable people to turn around off the narrow road.
Visitor Center	In the short term, retain the temporary existing visitor center with administrative and visitor services functions located within the Castle Rocks State Park Administrative Unit in Almo, on state-owned land. In the long term, seek to develop a permanent visitor center on state-leased BLM land near Smoky Mountain as approved in the 1996 comprehensive management plan and the Castle Rocks State Park Master Plan. (Though the National Park Service does not have funding programmed for any capital contribution to this visitor center, the Idaho Department of Parks and Recreation may proceed with development if state funds become available. The National Park Service would continue to provide support and design consultation, or other assistance.)	Instead of building a new visitor center, emphasize visitor pre-planning through the internet and community outreach. Reconfigure the existing visitor center or provide a separate visitor contact station to provide additional space and a better separation of uses and functions on state land. Provide unstaffed kiosks at Bath Rock and at Smoky Mountain Campground to orient visitors who do not stop at existing visitor center. In the long term, if lands become available, the Reserve could consider building a visitor center at the R&PP lease.	Develop and implement a more cost-effective version (2,600 square feet) of the visitor center approved in the 1996 comprehensive management plan and the Castle Rocks State Park Master Plan. Locate the proposed visitor center near the Almo entrance within an expanded Reserve boundary (if authorized by Congress).	Develop and implement a permanent visitor center as approved in the Reserve's 1996 comprehensive management plan and the Castle Rocks State Park Master Plan. Locate the proposed visitor center near the Almo entrance within an expanded Reserve boundary (if authorized by Congress).
Employee Housing	Continue to provide limited employee housing at the Castle Rocks State Park Administrative Unit.	Same as alternative A.	Work with partners to encourage local communities in southern Cassia County to provide housing for researchers and visiting scholars.	Encourage local communities in southern Cassia County to provide additional housing for seasonal employees.

TABLE 18. SUMMARY OF ALTERNATIVES

Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Smoky Mountain Campground	Continue to use as the main campground for recreational vehicles, equestrians, and other camping outside the Reserve. In cooperation with the Bureau of Land Management, develop the Phase II additional camping loop on the R&PP lease for up to 62 additional campsites as approved in the 1996 CMP and 2006 Castle Rocks State Park Master Plan. Add an accessible toilet and additional showers based on availability of water.	In cooperation with the Bureau of Land Management, the National Park Service and the Idaho Department of Parks and Recreation would partner to develop a low-cost primitive group camping area on the R&PP lease for social camping (50–70 people), including some tent campsites. Add two to three toilets and a communal parking area. Construct an amphitheater for evening programs and interpretive activities. Add an unstaffed information kiosk for self-directed visitor orientation.	Propose a Reserve boundary modification that includes Smoky Mountain Campground, which would require the state to relinquish its lease with the Bureau of Land Management. Include the Phase II additional camping loop for up to 62 additional campsites as approved in the Reserve's 1996 comprehensive management plan and 2006 Castle Rocks State Park Master Plan and include social camping opportunities. Add toilets and additional showers based on availability of water. Construct an amphitheater for evening programs and interpretive activities.	Propose a Reserve boundary modification that includes Smoky Mountain Campground, which would require the state to relinquish its R&PP lease with the Bureau of Land Management. Include the Phase II additional camping loop for up to 62 additional campsites as approved in the 1996 comprehensive management plan and 2006 Castle Rocks State Park Master Plan and include more individual tent campsites. Add toilets and additional showers based on availability of water
Outdoor Learning Center	N/A	N/A	Develop an outdoor learning center to immerse students and visitors in nature through outdoor experiences. Construct the outdoor learning center near Smoky Mountain Campground. Limit formal development of facilities and services to five to six yurts or temporary outdoor shelters to house approximately 30 people. Provide a covered shelter or well-designed pavilion to meet out of the weather.	N/A
Reserve Management and Operations				
Management (Common to All)	Continue to manage City of Rocks National Reserve as a unit of the national park system managed by the Idaho Department of Parks and Recreation under Cooperative Agreement 1443-CA9000-96-0002.			
Private Land Uses (Common to All)	Private uses on private lands would continue under the jurisdiction of Cassia County.			
Operations (Common to All)	Continue to locate Reserve operations (administration and maintenance) at the Castle Rocks State Park Administrative Unit in Almo. This would include employee offices, the library, maintenance shop, and other administrative functions.			

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Reservations (Common to All)	Continue to offer camping through a national campsite reservation system (currently ReserveAmerica).			
Cooperation (Common to All)	Continue to work with adjacent landowners and citizens on issues of mutual concern.			
Partnerships				
Cassia County Road Network	Continue to work with Cassia County to maintain jurisdictional county roads (City of Rocks Road is designated as part of City of Rocks Back Country Byway) within the Reserve. Encourage the county to maintain these roads to NPS standards and to keep the roads through the Reserve unpaved. Continue to work cooperatively with the county on visitor safety, signage, and information.	Consider opportunities for NPS ownership or management of the county road through the Reserve to provide maintenance assistance to the county and/or to ensure county road maintenance practices contribute to NPS road standards and character. Work with the county to lower speed limits and to better control water flow off county roads.	Same as alternative B.	Same as alternative B.
Other Partnerships	Work with adjacent and Reserve landowners on resource protection and visitor use issues of mutual concern.	Develop partnerships with adjacent land managers to extend trail connections and to provide a continuum of recreational experiences. Include trails that connect to the lands managed by the U.S. Forest Service, Castle Rocks State Park, and the Bureau of Land Management.	Partner with universities, federal and state agencies, institutes, nonprofit organizations, local landowners, tribes, the UCBN I&M program, and the Cooperative Ecosystem Studies Unit on various resource issues. Work with agencies to promote research and provide outreach and education programs across the larger landscape. Reserve staff would encourage researchers to give programs for the public at the visitor center. Work with adjacent and Reserve landowners on resource protection areas of mutual concern.	Partner with others for interpretation, outreach, and education, and develop partnerships with adjacent land managers to expand trail connections and provide a continuum of recreational experiences. Build relationships with partners, user groups, and tribes to emphasize citizen stewardship activities and to encourage them to share their connections and stories with each other and the public.

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Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Environmental Sustainability	<p>Continue to reduce energy use and to undertake other practices that would contribute to making the Reserve environmentally sustainable. Continue recycling program, pursue implementation of energy efficiency actions, and follow NPS sustainability guidelines.</p>	<p>Same as alternative A, plus pursue implementation of energy-efficient actions outlined in the NPS climate action plan and NPS sustainability guidelines. Maximum energy efficiency, conservation, and sustainability associated with any new development.</p>	<p>Same as alternative B, plus the visitor center and outdoor learning center would both employ sustainable design techniques to minimize environmental impacts, including carbon footprint.</p> <p>Development on NPS land would include improvements in energy efficiency and reduction in greenhouse gas emissions for both the building envelope and the mechanical systems supporting the facility. Energy-efficient construction projects would be used as an educational opportunity for visitors.</p>	<p>Same as alternative B.</p>

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Topic	Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship	Alternative D: Treasured Landscapes Inspiring Stories
Boundary				
Boundary	Maintain existing boundary.	Same as alternative A, plus encourage Cassia County and private landowners to explore ways to commemorate and protect the California Trail corridor from the southwest corner of the Reserve to Granite Pass.	Propose a boundary modification (4,247 acres) to add scenic resources, viewsheds associated with the cultural landscape, and portions of the California National Historic Trail at the eastern boundary of the Reserve. Include Smoky Mountain Campground, the outdoor learning center, and the land currently leased to the state by the Bureau of Land Management. Encourage Cassia County and private landowners to commemorate and protect the California Trail corridor from the southwest corner of the Reserve to Granite Pass. Maximize federal and state funding to support resource issues of mutual concern, such as fire and hazard fuel reduction, management of nonnative invasive plants and wildlife, trail connections to public lands, and climate change research or responses. Focus implementation on collaboration with others including use of Service First authority.	Propose a boundary modification (4,247 acres) to add scenic resources and portions of the California National Historic Trail at the eastern boundary of the Reserve and include Smoky Mountain Campground and the land currently leased to the state by the Bureau of Land Management. Encourage Cassia County and private landowners to commemorate and protect the California Trail corridor from the southwest corner of the Reserve to Granite Pass.
Staffing				
Staffing	Maintain staffing levels at 7 classified full-time equivalent employees: 1 interpretive and education specialist 1 maintenance worker 2 management and administration positions 1 resource management (cultural) 1 resource management (natural) 1 climbing ranger	Same staff as alternative A, plus add 3 new positions: 1 interpretive and education specialist 1 visitor protection ranger 1 maintenance worker (100% funded by NPS)	Same staff as alternative A, plus add 5 new positions: 1 interpretive and education specialist 1 visitor protection ranger 1 maintenance worker (100% funded by NPS)	Same staff as alternative A, plus add 5 new positions: 2 interpretive and education specialists 1 visitor protection ranger 1 maintenance worker 1 education specialist/volunteer coordinator (100% funded by NPS)

Summary of Impacts

“Table 19. Summary of Impacts” summarizes the impacts for each alternative. “Chapter 6: Environmental Consequences” contains a full description of impacts.

TABLE 19. SUMMARY OF IMPACTS				
Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship (Environmentally Preferred Alternative)	Alternative D: Treasured Landscapes Inspiring Stories	
Alternative A: the No Action Alternative would assume that current management, programming, facilities, staffing, and funding would generally continue at their current levels and that existing plans would be implemented.	Alternative B: Silent City of Rocks would focus on the spectacular scenic quality, geology, biological richness, and cultural landscape experienced by past and present visitors to emphasize a backcountry-type visitor experience that would allow for self-discovery within a minimally developed western outdoor environment.	Alternative C: A Stage for Stewardship (preferred alternative) would protect resources through research activities, educational opportunities, and partnerships by emphasizing the national significance of the Reserve.	Alternative D: Treasured Landscapes Inspiring Stories would tell the stories of the Reserve through the people who pass through, live, and recreate here by focusing on the California Trail and the ranching heritage and by emphasizing a frontcountry and day-use experience with more formal and structured recreational opportunities and programs.	
Land Use				
Minor to moderate long-term beneficial effects and minor to moderate localized adverse effects.	Long-term moderate beneficial effects coupled with long-term minor to moderate adverse effects.	Similar to alternative B with more moderate adverse and minor to moderate beneficial effects.	Similar to alternative B with more moderate adverse effects.	
Continued minor to moderate cumulative adverse and minor to moderate beneficial effects.	Minor to moderate cumulative adverse and moderate beneficial effects.	Minor to moderate cumulative adverse and moderate beneficial effects.	Minor to moderate cumulative adverse and moderate beneficial effects.	
Air Quality				
Negligible to moderate short-term localized adverse and minor long-term beneficial impacts.	Increased range of minor to moderate localized adverse impacts coupled with minor long-term beneficial effects.	Similar to alternative B with slightly more beneficial effects.	Same as alternative B.	
Negligible to minor cumulative adverse and beneficial effects.	Slight reduction in cumulative adverse effects compared to alternative A.	Cumulative beneficial effects would increase compared to alternative A.	Cumulative beneficial effects would increase compared to alternative A.	
Lightscapes				
Long-term negligible to minor adverse and beneficial effects.	Same as alternative A.	Same as alternative A.	Same as alternative A.	
Potential decrease in cumulative effects.				

TABLE 19. SUMMARY OF IMPACTS

Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship (Environmentally Preferred Alternative)	Alternative D: Treasured Landscapes Inspiring Stories
Soundscapes			
Localized long-term negligible to minor adverse effects. Localized short-term negligible to moderate, with some potential for intermittent major effects. Minor cumulative adverse effects.	Similar to alternative A with reduced short-term effects.	Same as alternative A.	Same as alternative A.
Geology and Soils			
Range of negligible to moderate localized adverse and minor to moderate long-term beneficial effects. Continuing minor to moderate localized and negligible to minor cumulative beneficial effects.	Similar to alternative A with fewer adverse effects and more beneficial effects. Cumulative effects same as alternative A.	Similar to alternative A with more beneficial effects. Cumulative effects same as alternative A.	Similar to alternative A. Cumulative effects same as alternative A.
Water Resources: Hydrology and Water Quantity			
Negligible to moderate localized adverse effects. Minor to moderate cumulative adverse effects.	Similar to alternative A with minor long-term localized adverse and potential beneficial effects. Cumulative effects similar to alternative A with potential for reduction.	Same as alternative B with potential for more beneficial effects. Potential reduction in cumulative effects similar to but greater than in alternative B.	Similar to alternative A with more potential for additional localized moderate adverse effects. Cumulative effects same as alternative A.
Water Resources: Water Quality			
Short- and long-term minor adverse impacts, some localized moderate impacts. Minor beneficial effects. Minor to moderate adverse cumulative effects combined with negligible to minor beneficial effects.	Same as alternative A.	Same as alternative A.	Same as alternative A.
Water Resources: Wetlands			
Short-term minor to moderate or major localized adverse and long-term negligible to moderate beneficial effects. Minor to moderate localized cumulative adverse and negligible to moderate cumulative beneficial effects.	Short- and long-term minor to moderate or major localized adverse and negligible to moderate long-term beneficial effects (more than alternative D). Minor cumulative adverse and negligible to moderate cumulative beneficial effects.	Impacts similar to alternative B, but beneficial impacts could be greater. Cumulative impacts similar to alternative B but could be reduced.	Impacts same as alternative A. Cumulative impacts slightly reduced compared to alternative A.

TABLE 19. SUMMARY OF IMPACTS

Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship (Environmentally Preferred Alternative)	Alternative D: Treasured Landscapes Inspiring Stories
Vegetation			
Negligible to major long-term localized adverse impacts and minor to moderate beneficial impacts. Moderate cumulative (including major localized) adverse impacts.	Negligible to major short- and long-term localized adverse impacts and short- and long-term minor to moderate beneficial impacts with potential for reduction of major impacts to moderate. Moderate cumulative (including major localized) adverse impacts with some potential for reduction.	Similar to alternative B, with more potential for reduction of major impacts to moderate. Moderate cumulative (including major localized) adverse impacts with some potential for reduction.	Same as alternative A. Moderate cumulative (including major localized) adverse impacts.
Wildlife			
Negligible to moderate localized adverse impacts. Continuing minor to moderate cumulative adverse effects.	Same as alternative A plus negligible to moderate localized beneficial impacts. Continuing minor to moderate cumulative adverse effects. Little contribution to cumulative effects. Negligible to minor cumulative beneficial effects.	Similar to alternative B with more beneficial impacts. Cumulative effects same as alternative B.	Similar to alternative D with more adverse impacts. Cumulative effects same as alternative B.
Special Status Species			
No effect on federally listed species. May affect, not likely to adversely affect candidate species. No effect or minor adverse and beneficial effects on some federal and state sensitive species. Negligible to minor contributions to cumulative effects.	Same as alternative A.	Same as alternative A.	Same as alternative A.
Cultural Resources: Prehistoric and Historic Archeology			
No adverse effect. Negligible to minor cumulative adverse effects (no adverse effect).	Same as alternative A. Minor cumulative adverse effects (no adverse effect).	Same as alternative B.	Same as alternative B.
Cultural Resources: Cultural Landscapes			
No adverse effect. Minor to moderate cumulative adverse and minor beneficial effects.	Same as alternative A. Minor to moderate cumulative adverse and beneficial effects.	Same as alternative B.	Same as alternative B.

TABLE 19. SUMMARY OF IMPACTS

Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship (Environmentally Preferred Alternative)	Alternative D: Treasured Landscapes Inspiring Stories
Visitor Experience: Access and Transportation			
Minor to moderate localized adverse effects combined with minor beneficial effects.	Minor to moderate localized adverse and beneficial effects on some visitors.	Same as alternative B.	Same as alternative B.
Minor to moderate cumulative adverse effects and minor beneficial effects.	Minor cumulative adverse effects and minor to moderate beneficial effects.	Minor cumulative adverse effects and minor to moderate beneficial effects (more than in alternative B).	Minor cumulative adverse effects and minor to moderate beneficial effects (more than in alternative B).
Visitor Experience: Visitor Use Opportunities			
Minor to moderate beneficial effects.	Same as alternative A.	Minor to moderate beneficial effects (more than in other alternatives).	Minor to moderate beneficial effects (more than alternatives A and B).
Minor to moderate cumulative beneficial effects.	Moderate cumulative beneficial effects.	Cumulative effects same as alternative B.	Cumulative effects same as alternative B.
Visitor Experience: Interpretation and Education			
Minor long-term beneficial effects.	Minor long-term beneficial effects.	Moderate long-term beneficial effects.	Moderate long-term beneficial effects.
Minor to moderate cumulative beneficial effects.	Minor cumulative beneficial effects.	Moderate cumulative beneficial effects.	Moderate cumulative beneficial effects (less than alternative C).
Visitor Experience: Visitor and Employee Safety			
Potential for negligible to minor adverse effects.	Potential for negligible to minor adverse effects. Long-term beneficial effects.	Same as alternative B.	Same as alternative B.
Minor cumulative beneficial effects.	Cumulative effects same as alternative A.	Cumulative effects same as alternative A.	Cumulative effects same as alternative A.
Visitor Experience: Scenic Resources			
Negligible to minor long-term beneficial effects.	Minor to moderate localized long-term beneficial effects.	Minor to moderate localized long-term beneficial effects.	Minor to moderate localized long-term beneficial effects.
Negligible to minor cumulative beneficial effects.	Minor cumulative beneficial effects.	Cumulative effects same as alternative B.	Cumulative effects same as alternative B.
Park Operations and Partnerships			
Minor to moderate adverse and long-term moderate beneficial effects.	Similar to alternative A with slightly improved beneficial effects.	Similar to alternative A with more beneficial effects.	Same as alternative C.
Minor to moderate cumulative adverse and beneficial effects.	Cumulative effects same as alternative A.	Cumulative effects same as alternative A.	Cumulative effects same as alternative A.

TABLE 19. SUMMARY OF IMPACTS

Alternative A: No Action	Alternative B: Silent City of Rocks (Preferred Alternative)	Alternative C: A Stage for Stewardship (Environmentally Preferred Alternative)	Alternative D: Treasured Landscapes Inspiring Stories
Socioeconomics			
Long-term negligible to minor adverse and beneficial effects. Negligible to moderate localized cumulative beneficial effects.	Long-term negligible to minor adverse and beneficial effects. Negligible to minor cumulative adverse effects. Negligible to moderate localized cumulative beneficial effects.	Long-term negligible to minor adverse and beneficial effects. Minor cumulative adverse and negligible to moderate localized cumulative beneficial effects.	Long-term negligible to minor adverse and beneficial effects. Cumulative beneficial effects same as alternative C.
Special Uses and Designations: Grazing and Livestock Trailing			
Negligible to minor adverse effects on grazing. No effect on livestock trailing. Negligible to minor cumulative adverse effects.	Same as alternative A. Minor to moderate cumulative adverse effects on grazing and negligible adverse effects on livestock trailing.	Minor to moderate adverse effects on grazing. No effect on livestock trailing. Cumulative impacts similar to alternative B with potential for more impacts.	Same as alternative A. Cumulative impacts similar to alternative A.
Special Uses and Designations: National Natural Landmark			
Minor to moderate long-term beneficial and localized adverse effects. Minor cumulative beneficial effects.	Same as alternative A. Minor to moderate cumulative beneficial effects.	Similar to alternative A with more beneficial effects. Cumulative beneficial effects same as alternative B.	Same as alternative C. Cumulative beneficial effects same as alternative B.
Special Uses and Designations: National Historic Landmark			
(Same as Cultural Landscapes)			
Special Uses and Designations: National Historic Trail			
Minor beneficial effects. Cumulative effects same as cultural landscapes.	Minor beneficial effects. Cumulative effects same as cultural landscapes.	Similar to alternatives A and B with additional beneficial effects. Cumulative effects same as cultural landscapes.	Same as alternative C Cumulative effects same as cultural landscapes.
Special Uses and Designations: Research Natural Area			
Long-term minor adverse and minor to moderate beneficial effects. Cumulative effects same as land use.	Similar to alternative A with fewer adverse effects.	Similar to alternative A with fewer adverse and more beneficial effects.	Same as alternative C.

Chapter 4

The Affected Environment





Chapter 4: The Affected Environment

The purpose of this chapter is to describe the physical, biological, cultural, and social environments of City of Rocks National Reserve, including human uses that could be affected from implementing any of the alternatives described in the preceding chapter. Although this chapter contains topics that were identified as important issues by the public and land management agencies during scoping, it also contains additional background data relevant to Reserve managers and a broader audience.

LAND USE AND OWNERSHIP PATTERNS

City of Rocks National Reserve encompasses approximately 14,407 acres. Most of the private land within and surrounding the Reserve is used for domestic livestock grazing, which is important to the regional economy. Most of the public lands are divided into grazing allotments, which are relied upon heavily by local ranchers (“Figure 12. Grazing Allotments”). Currently there are seven permittees grazing cattle on 6,981 acres of public land in the Reserve, with an estimated 504 active animal unit months in eight allotments. Livestock are grazed on another 4,000 acres of privately owned land. Grazing is excluded from the remaining 2,331 acres of public land in the Research Natural Area, state-owned section 36, and other federal land not within a grazing allotment. Area ranchers frequently trail cattle across the Reserve from one allotment to another. Cattle operations in the Reserve contribute to a western rural setting that imparts an increasingly rare ambience and scenic quality reminiscent of the old American West.

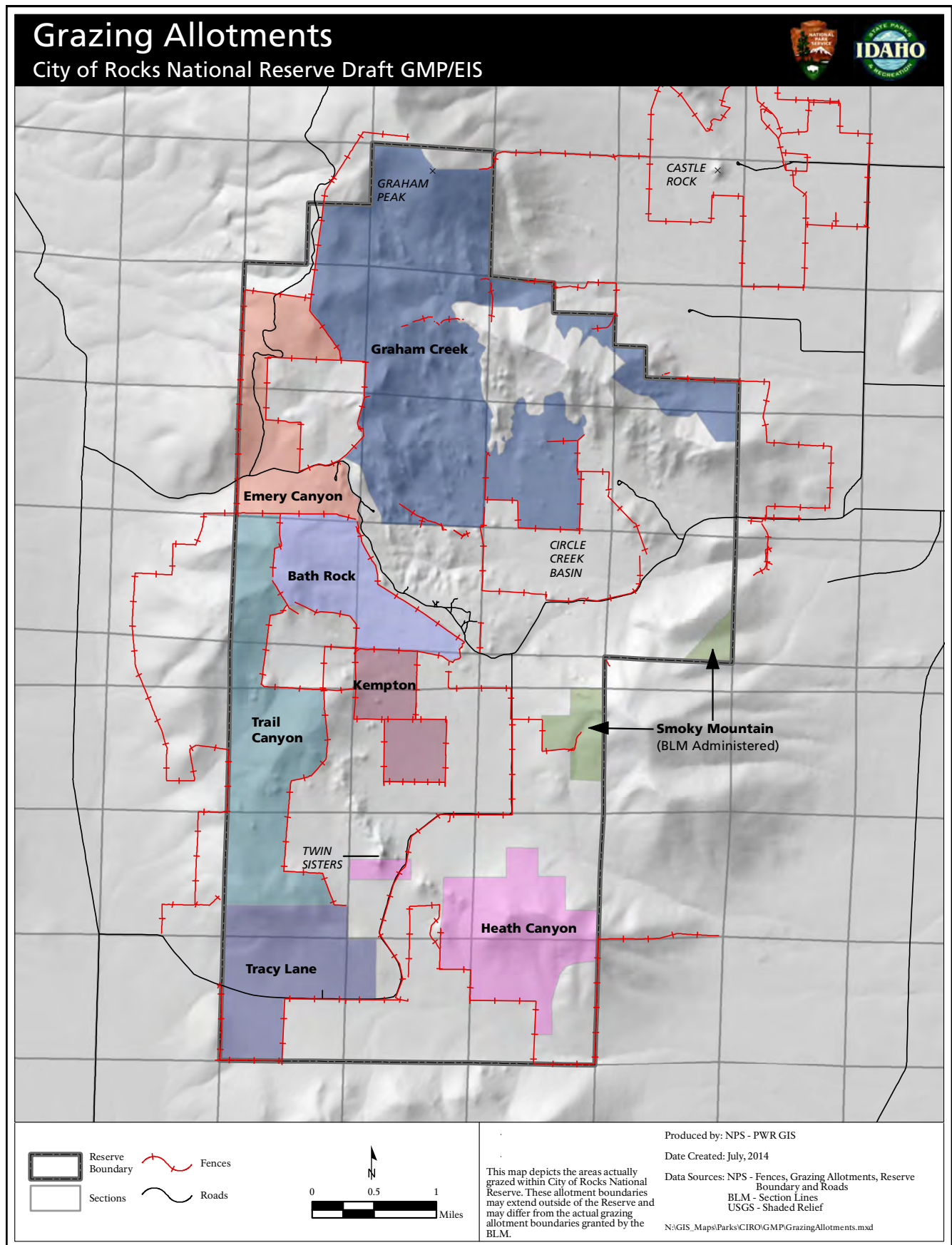
At the time of the Reserve’s designation in 1988, the ratio of private to public land within the Reserve was about 50/50. Public Law 100-696 provided a way for private landowners to sell to the United States due to hardship of the designation. The United States has purchased and traded property from willing sellers within the Reserve to increase public land holdings by more than 2,313 acres, while preserving the integrity of private land. This has allowed for increased interpretive and recreational opportunities and better placement and rotation of grazing, as well as protection of wetlands and resources of significance within the Reserve.

In 1999, the Idaho Department of Parks and Recreation entered into a Recreation and Public Purpose lease with the Bureau of Land Management for the development of a campground and visitor center outside the boundaries of the Reserve. The developed campground, Smoky Mountain Campground, offers 38 individual serviced campsites nestled within Idaho’s largest pinyon pine forest. Six of the sites are designated for equestrian users and include corrals. The campground also includes an equestrian trail head, restrooms, showers, and an RV dump station.

FARMING

There has been virtually no active crop farming in the Reserve for decades, though crop farming does continue in the adjacent valleys. Most ranching operations are cow/calf operations, which include growing hay (alfalfa and native wild hay) and grain to feed livestock during winter months after cattle return from summer rangelands. In 1978 Sharp and Sanders explained why City of Rocks and the surrounding area was important to the self-sufficiency of local ranches:

FIGURE 12. GRAZING ALLOTMENTS



“The physical features of City of Rocks and surrounding valleys and mountains create an environment well suited to the production of livestock. The mountain areas provide ample summer grazing, foothills and plateau lands sustain animals during the spring and fall, the lower valleys and irrigated lands furnish feed and forage through the winter months. The interrelationship of private and public lands is such that if any part of the cyclic grazing pattern is removed, it would be difficult for a ranch to continue to operate” (Sharp and Sanders 1978: p. 29).

LIVESTOCK

Livestock grazing in the Reserve is managed in order to maintain the western rural setting and character of the landscape from 1878–1988. No increases in animal unit months have been added to the grazing program. Fences have been realigned, removed, and maintained to facilitate better management of the livestock grazing program. Fences no longer in use are removed. Research continues to determine vegetative health and viability of plant communities as it relates to the livestock presence in the Reserve. There are still occasional cattle drives through the Reserve during the spring and fall migration of the livestock. An updated grazing management plan is being implemented for a more sustainable rotation and management program for grazing in the Reserve.

MINING

The history of mining at the Reserve has not been fully researched. Geologically, the Almo pluton is similar to the larger Idaho Batholith in Northern Idaho. This prompted prospectors in the early 20th century to explore the City of Rocks area in hopes of discovering valuable minerals and metals. Deposits of metal have been found near the Reserve in the Black Pine Mountains to the east and in the Albion Mountains to the north and west. Inside the Reserve boundaries several mica mines produced small quantities of mica. In 1993, the Bureau of Mines completed a mineral resource

investigation of the Cache Peak study area (Bureau of Mines 1993). This study area lies to the north of the current Reserve boundaries. The report lists many previous studies including works concerning the economic geology of the region and the mineral resource potential of the area. The Idaho State Historical Society published *Mining Idaho’s History: Metal Mining in Idaho 1860–1960: A Mining Context for Idaho* (McKay 2011). This work provides a general overview of mining in Idaho.

Between 1988 and the present, NPS and IDPR staff have roamed throughout the Reserve discovering small scale prospecting/mining features. There are four known mica mines on the west edge of the Twin Sisters Basin and several other small mining features scattered throughout the Reserve. These features would have been created in the early to mid-20th century. It is believed that all operations ceased by 1950 as the quantities of product were small and the locations remote from markets. In 1990, Sidney Covington completed a report on the Marie Lynn Placer Mining Claim (Covington 1990). This claim is located on the west edge of the Reserve. In the 1990s, a private landowner in the Reserve set up an exploratory well for oil and/or gas in the west end of Circle Creek Basin. The well did not produce and the equipment was removed by 2000. In 2006, during the sale of the Laughmiller property within the Reserve, a claim was made in hopes of increasing the land value but the claim was not valid and the land sale proceeded without additional cost to the National Park Service.

In 2011, the National Park Service funded a project to document abandon mining areas within NPS national park units. The crew documented the locations of mining areas known to the Reserve staff at the time. Discussions with NPS regional personnel after the crew left revealed the existence of additional locations. These locations will be documented and added to the NPS database. Currently, there are mining features entered in the database.

SPECIAL DESIGNATIONS

Before the Reserve was established, the national significance of this site and its special natural and cultural resources were recognized by the local community and people from outside the region who had visited and been inspired by their experiences at City of Rocks. As a result, and through additional research and analysis, a national historic landmark and a national natural landmark were established. Additionally, Cassia County zoned a large portion of the Reserve as a Historical Preservation Zone (HPZ). Much of the lands with NHL, NNL, and HPZ designation are within the boundary of the Reserve; however, each of these designations covers a slightly different area of land, and none covers the entire expanse of the Reserve (“Figure 4. Designations”).

LOCAL ZONING

Much of the land within and surrounding the Reserve is public land, either under federal (BLM, NPS, or USFS) ownership or belonging to the State of Idaho. Non-public lands within the Reserve are subject to Cassia County zoning. Adjacent lands in the unincorporated area are also under Cassia County zoning laws (“Figure 13. Cassia County Zoning”). According to the *Cassia County Comprehensive Plan*, zoning within and adjacent to the Reserve includes both Historical Preservation and Multiple Use Zones (Cassia County 2006). While most of the Reserve is within the designated Historical Preservation Zone, a portion in the southeast corner of the Reserve is a Multiple Use Zone. The Historical Preservation Zone limits development to one dwelling unit per owner of record at the Reserve’s establishment, subject to county design guidelines, to preserve the historic rural character of the area. The Multiple Use Zone is a designation applied to remote, nonprime production land areas that are used primarily for other agriculture and livestock/wildlife forage production and requires only a conditional use permit for residential development.

LAND USE OF CASSIA COUNTY AND LOCAL COMMUNITIES

The nonfederal lands surrounding the Reserve are zoned for multiple use and used primarily for agricultural, and livestock production. The gateway businesses have developed within the nearby communities in response to an increase in park visitors and scenic byway improvements. The most significant business development is occurring in Albion and Almo. These businesses include food service, lodging, fuel and convenience stores, and a hot springs swimming facility.

Land ownership adjacent to the Reserve remains traditional ranching by local families or those who continue agricultural uses. Cassia County land use patterns and ownership are illustrated in table 20 below.

Cassia County recognizes and encourages agriculture as its primary economic base but also supports manufacturing and processing industries to develop a strong job market and a diversified local economy. The county encourages location of well-planned commercial and industrial development in or around existing cities and not on prime agricultural land unless absolutely required.

The county’s land use and ownership patterns generally reflect that of the region. Rangeland covers 68% of the county, and 28% of the land is used for agriculture. Fifty-seven percent of the county’s land is controlled by federal agencies and 40% is privately owned. Unincorporated lands of Cassia County are zoned by the county as multiple use zones. Zoning of incorporated lands is the responsibility of the incorporated units.

FIGURE 13. CASSIA COUNTY ZONING

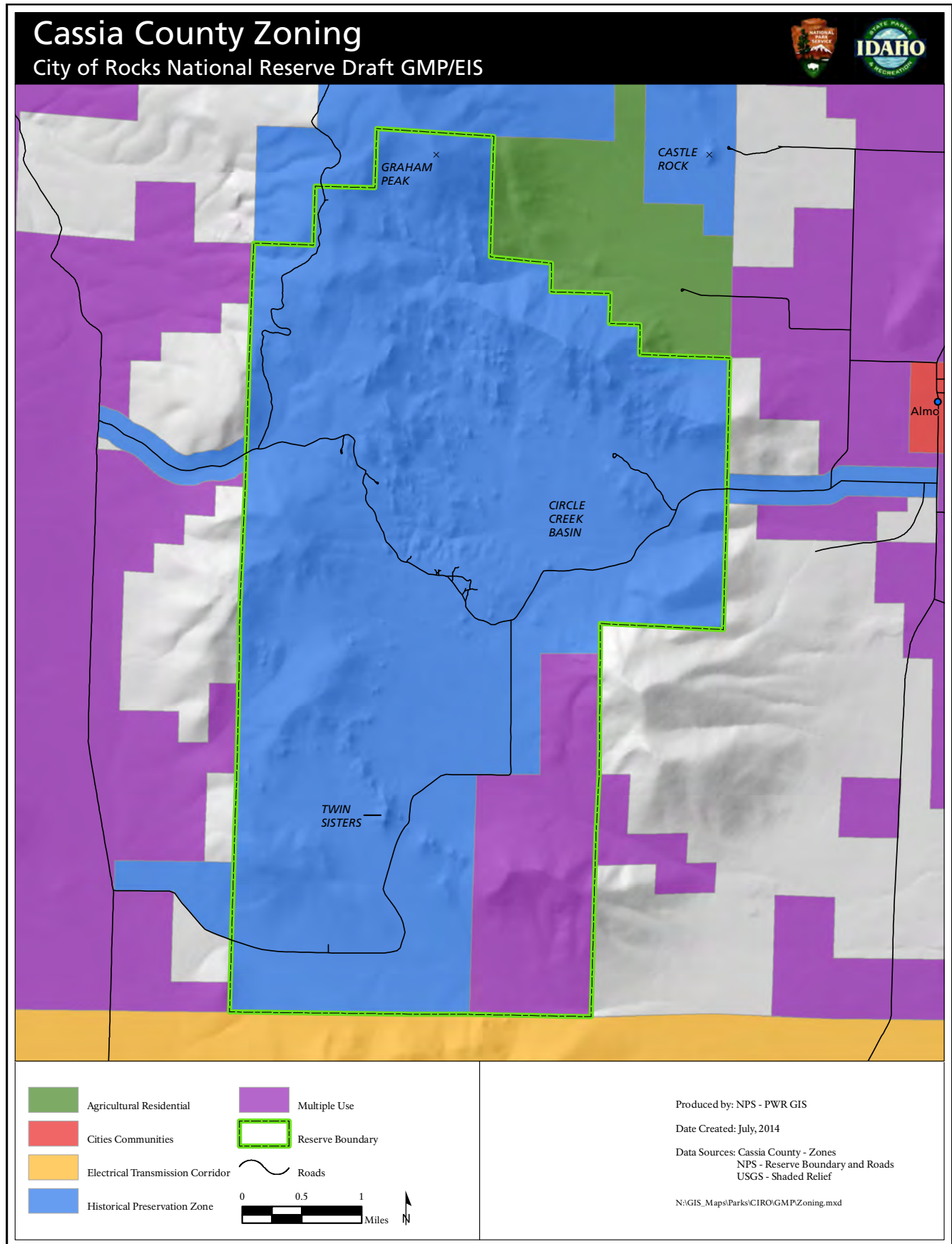


TABLE 20. COUNTY PROFILES OF IDAHO-CASSIA

Land Ownership	Acres	Percent of Total Land Ownership
Federal Land	925,150	56.3%
BLM	516,060	
USFS	387,053	
Other	22,037	
State Land	51,670	3.1%
Endowment Land	50,129	
Fish & Game	901	
Parks & Recreation	640	
University of Idaho Land	0	
Private Land	663,408	40.4%
County Land	1,800	0.1% *
Municipal Land	596	-
Total	1,642,624	99.9%
Land Use**	Acres	Percent Total
Urban Land	7,100	0.4%
Agriculture	453,300	27.7%
Rangeland	1,113,000	67.9%
Forest	46,400	2.8%
Water	10,200	0.6%
Wetland	0	0.0%
Barren Land	8,400	0.5%
Tundra	0	0.0%
Perennial Snow	0	0.0%
Total	1,638,400	100.0%

*0.1% represents city and county land combined.

**Land use based on USGS land use cover/classification system. The water category and the rounding and estimating of satellite-based data usually results in slightly higher totals for land use.

Source: County Profiles of Idaho-Cassida, Idaho Commerce and Labor Department.

NATURAL RESOURCES

CLIMATE AND AIR QUALITY

Climate

City of Rocks National Reserve is located in south-central Idaho on the northern edge of the Basin and Range physiographic province, about 5 miles (8 km) north of the Utah border. The Basin and Range province is a vast physiographic region defined by a unique topographic expression. Basin and Range topography is characterized by abrupt changes in elevation, alternating between narrow faulted mountain chains and flat arid valleys or basins. The Basin and Range province is effectively cut off from the westerly flow of Pacific moisture due to orographic uplift by the Sierra and Cascades ranges, which causes cooling and precipitates much of the moisture out of crossing air masses. The result is a Dry Steppe cold climate classification for most of the Basin and Range. The climate is typical of middle latitude, semi-arid lands where evaporation potential exceeds precipitation throughout the year.

Average maximum temperature is based on 30 years of data (between 1961 and 1990) and average rainfall is based on 21 years of data (between 1963 and 1995), see Table 21 (Average Maximum Temperature) and Table 22 (Average Rainfall).

Summers are generally dry with wide temperature ranges, where nighttime lows occasionally approach freezing and midday highs can be near 90°F (31.7°C). Ten to 15 inches (25.4 to 38.1 cm) of precipitation falls mostly in the spring; however, August and September also see afternoon thundershowers.

Precipitation in the City of Rocks National Reserve was modeled by the Oregon State University PRISM program (PRISM 2011), a model used by the USDA Natural Resources Conservation Service (NRCS) to provide baseline data for many of their programs. It shows a general southwest to northeast trend line that approximately follows the orientation of the Albion Mountains. To the east of this line the area is drier with precipitation increasing rapidly to the northwest as elevation increases. Below about 6,800 feet, the precipitation ranges from about 14 to 16 inches, the average annual air temperature is about 42° Fahrenheit (F), and the frost-free period is about 80 days. From 6,800 feet to about 7,400 feet, the precipitation rises to about 22 inches, the average annual air temperature decreases to about 40°F, and the frost-free period decreases to about 65 days. At elevations above 7,400 feet to the Reserve maximum of about 8,867 feet on top of Graham Peak, the precipitation increases to about 25 inches, the average annual air temperature is about 38°F, and the frost-free period is about 45 days.

TABLE 21. AVERAGE MAXIMUM TEMPERATURE

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
°C	2.5	6.0	10.3	15.9	20.7	26.3	31.7	31.0	25.0	18.3	9.1	3.3	16.7
°F	36.5	42.8	50.5	60.6	69.3	79.3	89.1	87.8	77.0	64.9	48.4	37.9	62.1

TABLE 22. AVERAGE RAINFALL

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Year
mm	18.6	15.5	26.0	27.8	41.0	31.0	23.6	26.6	24.4	20.6	22.3	19.3	297.7
inches	0.7	0.6	1.0	1.1	1.6	1.2	0.9	1.0	1.0	0.8	0.9	0.8	11.7

(WorldClimate 2011)

Air Quality

Air pollution not only affects the quality of the air we breathe but can also impact the quality of scenic views and virtually every aspect of an ecosystem, from soil and water quality, to the health, vigor, and status of vegetation and wildlife. For example, nitrogen (N) and sulfur (S) compounds deposited from air pollution can harm soils, vegetation, lakes, and streams through acidification or fertilization, resulting in disruption of nutrient cycling, changes in species composition, and loss of biodiversity. Pollutant particles in the atmosphere scatter and absorb light, creating a haze that impairs scenic park views.

Air pollutants emitted in or near the Reserve could be those that affect visibility (nitrogen oxides, sulfur oxides, and particulates), those that affect human health (hydrocarbons, ozone precursors, nitrogen oxides, sulfur dioxide, particulates, and air toxics), and/or those that affect ecosystems (ozone, acidic deposition of nitrogen and sulfur, nitrogen nutrient enrichment, and air toxics). Resources that are sensitive to air pollution are called air quality related values (AQRVs).

The primary factors that determine air quality in the Reserve are the location of air pollutant sources, the types and amounts of pollutants emitted, meteorological conditions, and topographic features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

The National Park Service tracks air quality conditions through national pollutant monitoring networks. However many parks, such as City of Rocks National Reserve, do not have onsite monitoring equipment. For this reason, the NPS Air Resources Division (ARD) interpolates pollutant monitoring data from the national networks to estimate air quality conditions in parks without monitors (see “Interpolated Air Quality Parameters” below). The National Park Service uses ambient air quality data, ecological effects studies, and risk assessments to assess the condition of air quality related values in parks.

National Ambient Air Quality Standards

The federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) protective of public health (primary standards) and welfare (secondary standards). The Environmental Protection Agency has established NAAQS for six “criteria” pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter particles smaller than 10 microns in diameter (PM_{10}) and particles smaller than 2.5 microns in diameter ($PM_{2.5}$), and lead. The Environmental Protection Agency has also classified air basins, or portions thereof, as either attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The Reserve is located in Cassia County, which is regulated by the Idaho Department of Environmental Quality (IDEQ). Cassia County is “unclassified” for all NAAQS because no monitoring of criteria pollutants exists in the area. Table 23 provides a list of the National Ambient Air Quality Standards (EPA 2011).

TABLE 23. NATIONAL AMBIENT AIR QUALITY STANDARDS (AS OF OCTOBER 2012)

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm	8-hour (1)	None	
	35 ppm	1-hour (1)		
Lead	0.15 µg/m3 (2)	Rolling 3-Month Average	Same as Primary	
Nitrogen Dioxide	0.53 ppm	Annual (Arithmetic Average)	Same as Primary	
	0.100 ppm	1-hour (4)	None	
Particulate Matter (PM ₁₀)	150 µg/m3	24-hour (5)	Same as Primary	
Particulate Matter (PM _{2.5})	15.0 µg/m3	Annual (6) (Arithmetic Average)	Same as Primary	
	35 µg/m3	24-hour (7)	Same as Primary	
Ozone	0.075 ppm	8-hour (8)	Same as Primary	
Sulfur Dioxide	0.075 ppm	1-hour*	0.5 ppm	3-hour (1)

(1) Not to be exceeded more than once per year.

(2) Not to be exceeded.

(4) The 3-year average of the 98th percentile of the daily maximum 1-hour average must not exceed 0.100 ppm.

(5) Not to be exceeded more than once per year on average over 3 years.

(6) The 3-year average of the weighted annual mean must not exceed 15.0 µg/m3.

(7) The 3-year average of the 98th percentile of 24-hour concentrations must not exceed 35 µg/m3.

(8) The 3-year average of the fourth-highest daily maximum 8-hour average must not exceed 0.075 ppm.

* 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.

NPS Policy

Section 4.7.1, “Air Quality,” of NPS *Management Policies 2006* defines the NPS responsibility to protect air quality and related values under both the 1916 Organic Act and the federal Clean Air Act. In accordance with this policy, the Reserve will seek to perpetuate the best possible air quality to (1) preserve natural resources and systems; (2) preserve cultural resources; and (3) sustain visitor enjoyment, human health, and scenic vistas. Vegetation, visibility, water quality, wildlife, historic and prehistoric structures and objects, cultural landscapes, and most other elements of the Reserve environment may be

impacted by air pollution and are considered to be air quality-related values. The Reserve will actively promote and pursue measures to protect these values from the adverse impacts of air pollution. As noted in *Management Policies 2006*, in cases of doubt as to the impacts of existing or potential air pollution on park resources, the service will err on the side of protecting air quality and related values for future generations. City of Rocks National Reserve is classified by the Clean Air Act as a Class II air quality area (42 U.S.C. 7401 et seq.).

Air Quality Monitoring

There are no permanent onsite air quality monitors in the Reserve. In 2004, the National Park Service conducted passive ozone monitoring at the Reserve June through September. Samples were collected on a weekly basis, providing a general idea of the average weekly ozone concentrations in the Reserve. Ozone concentrations ranged from a low of 0.037 parts per million (ppm) in late September to a high of 0.056 ppm in late July, with a summertime average of 0.046 ppm. Because ozone concentrations are typically quite variable, often with significant diurnal swings, passive ozone data are difficult to compare to other criteria methods of measuring ozone, which are calculated based on shorter averaging times. While useful, the passive ozone data did not provide the Reserve with enough information to determine the actual ozone threat to plants or humans.

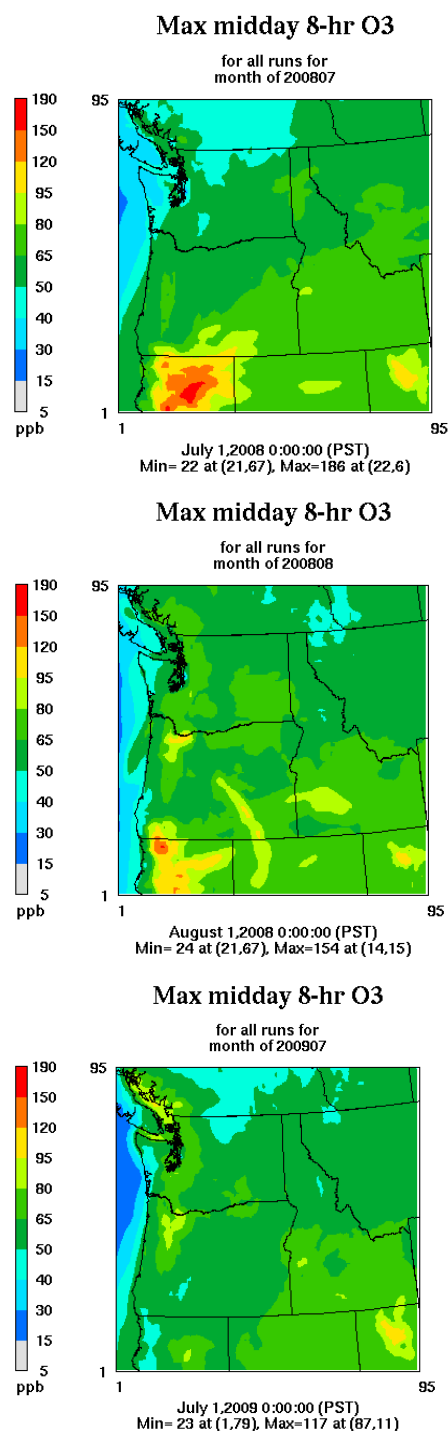
A portable monitor collected ozone data at the Reserve throughout the summer of 2010 and during May and June of 2011. Portable monitoring data can be compared to the NAAQS. The fourth highest daily maximum eight-hour ozone concentrations were 0.060 ppm in 2010 and 0.059 ppm in 2011. While the concentrations are below the NAAQS of 0.075 ppm, 0.060 ppm is within 80% of the standard, meaning concentrations are high enough to affect people who are sensitive to ozone (Ray 2011). Further, studies show that some plant species are more sensitive to ozone than humans.

Interpolated Air Quality Parameters

Interpolation is a method of constructing new data points within the range of a discrete set of known data points. Using ozone, acid deposition, and visibility data from existing ambient air quality monitoring networks, the “2006–2010 5-Year Average Air Quality Estimates” provides estimates of air quality information for areas without onsite ambient monitoring data (NPS 2012a).

Ozone

The interpolated 2006–2010 average of the annual fourth-highest eight-hour concentration in the Reserve is 0.072ppm. In addition to the interpolated estimates, Washington State University estimates ozone concentrations in the Northwest using the Community Multiscale Air



Quality modeling system (CMAQ). The following three CMAQ maps depict the modeled highest eight-hour average ozone concentrations for July 2008, August 2008, and July 2009, and portray values that are consistent with the interpolated values calculated by the National Park Service from monitored data.

While it is not known how representative the two summers of portable monitoring data are, they indicate that interpolations and CMAQ modeling may overestimate ozone concentrations at the Reserve (NPS 2010).

Some types of vegetation are more sensitive to the harmful effects of ozone and can exhibit foliar injury at exposure levels lower than the human health-based NAAQS. Foliar ozone injury on broadleaf plants is generally categorized by increasing levels of severity as stipple (small dots), chlorosis (yellow mottling), fleck, and bifacial necrosis (cell death). Three plant species in the Reserve, serviceberry (*Amelanchier alnifolia*), quaking aspen (*Populus tremuloides*), and Scouler's willow (*Salix scouleriana*) have been identified as being sensitive to ozone exposure (NPS 2006b).

A 2004 ozone risk assessment for the Reserve ranked the risk of foliar ozone injury as moderate using two indices, the W126 and SUM06, which were developed based on plant response to ozone. The NPS Air Resources Division also calculates interpolated W126 and SUM06 values for the Reserve. The interpolated 2006–2010 average W126 is 14.4 parts per million-hours (ppm-hrs) and the interpolated average SUM06 is 17.9 ppm-hrs at the Reserve, suggesting that sensitive vegetation could be at risk for foliar injury. However, site-specific surveys would need to be completed to determine whether injury is occurring in this park.

Acid Deposition

The deposition of acidic materials from the atmosphere to Earth's surface occurs in both wet and dry forms as rain, snow, fog, dry particles, and gases. A 2011 risk assessment (Sullivan et al. 2011), which evaluated the

relative risk of nitrogen enrichment effects on park ecosystems, found that existing plant communities in the Reserve may be sensitive to nitrogen deposition but that the overall risk from N deposition is low, due in part to relatively low pollutant exposures.

Deposition is reported in kilograms per hectare per year (kg/ha/yr) for sulfur and nitrogen. Deposition loading is computed by multiplying the precipitation-weighted mean ion concentration (in milligrams per liter—mg/L) for samples by the total precipitation amount for the summary period. The interpolated 2006–2010 wet deposition at the Reserve for sulfur is 0.8 kg/ha/yr, and for nitrogen it is 2.1 kg/ha/yr. This information suggests that nitrogen deposition may be a moderate concern in the Reserve if regional nitrogen deposition increases, but that sulfur deposition is not currently a concern (NPS 2010).

Particulate Matter

The term “particulate matter” (PM) includes both solid particles and liquid droplets found in air. Many human-caused and natural sources emit particulate matter directly or emit other pollutants that react in the atmosphere to form particulate matter. These solid and liquid particles come in a wide range of sizes. Particles less than 2.5 microns in diameter (PM_{2.5}) are referred to as “fine” particles and are believed to pose the greatest health risks. Because of their small size (less than one-seventh the average width of a human hair), fine particles can lodge deeply into the lungs. Interpolated 24-hr PM_{2.5} concentrations at the Reserve are 10.1–11.6 micrograms per cubic meter (µg/m³), which is less than the NAAQS of 35 µg/m³ (NPS 2012a).

Visibility Conditions

Visibility is degraded when light is scattered by tiny particles in the air, which reduces the clarity and color of what we see. This is referred to as haze and is often worse when the air is humid. Haze degrades visibility in many scenic areas. Air pollutants that contribute to fine-particle formation and haze come from a variety of natural and manmade sources. Visibility is often reported using a haze index called the deciview.

To assess the visibility condition at a park, the National Park Service determines the deciview difference between measured visibility and calculated natural visibility (i.e., without human-caused impairment). Interpolated visibility for 2006–2010 at the Reserve indicates that, on average, visibility at the Reserve is 30% hazier than natural conditions.

Air Pollution Emissions

Air pollution emissions are the gases and particles that are put into the air or emitted by various pollution sources. Mobile and stationary sources of greenhouse gas and criteria air pollutant emissions have been calculated for the energy, transportation, waste, and water sectors of the Reserve. Baseline emission sources for the Reserve break down to 43% transportation, 34% energy use, and 23% waste (NPS 2010c). For a description of the Reserve's operational emissions and regional emissions and sources, see table 24.

Carbon Neutral Vision

The NPS Pacific West Region has a vision for park operations to be carbon neutral by 2016. To help achieve this vision, the Reserve has developed a climate action plan that outlines actions for conserving energy and water, increasing efficiency and reducing waste, promoting renewable energy, and educating visitors on how they can help the region achieve its goal (Reserve 2010c). Future emissions will be compared to the 2008 baseline emissions inventory. The Reserve has set an annual emission reductions target at 30%.

City of Rocks National Reserve Emissions Inventory

City of Rocks National Reserve's 2007 carbon footprint was analyzed using the Climate Leadership in Parks (CLIP) tool (Module 1), a greenhouse gas emissions inventory model jointly developed by the Environmental Protection Agency and the National Park Service. Data used to perform the

TABLE 24. 2007 BASELINE EMISSION RESULTS FOR CITY OF ROCKS NATIONAL RESERVE – METRIC TONS CARBON DIOXIDE EQUIVALENT (MTCO2E)

Park Unit	Stationary Source	Purchased Electricity	Mobile Source	Refrigeration	Waste	Other GHG Sources	Gross Emissions	Net Emissions
Operations	18	0	23	0	12	0	53	53
Visitors	0	0	82	0	0	0	82	82
Other Permitted Activities	8	0	51	2	0	13	74	74
Gross Emissions	26	0	156	2	12	13	209	209
Net Emissions*	26	0	156	2	12	13	209	209
*Net Emissions = Gross Emissions - Carbon Sequestration								
Operational Data								
Stationary Combustion: 3,058 gallons of propane								
Purchased Electricity: 53,856 kilowatt hours								
Mobile Combustion: 174,489 vehicle miles traveled (Visitors)								
Solid Waste: 32 short tons (NPS CLIP Tool Report April 2010)								

calculations included the amount of electricity purchased, waste sent to the landfill, and fuels consumed. The baseline findings show that transportation was the largest contributor to total greenhouse gas emissions for the Reserve (75% of emissions). Energy was the next highest contributor, with 12% of emissions. Solid waste and other emissions sources (e.g., stationary combustion and refrigeration) contributed 7% and 6% to overall Reserve emissions, respectively. When only park operations were taken into consideration, transportation was still the highest greenhouse gas emitter, accounting for 43% of operational emissions. Energy and waste disposal contribute the remaining 34% and 23% of emissions, respectively. These findings provide an initial look at the carbon footprint of City of Rocks National Reserve. Further monitoring and analysis using the CLIP tool will be continued into the future and compared against the 2007 baseline to track progress in reducing the Reserve's carbon footprint. Table 24 lists the baseline emissions results for City of Rocks National Reserve.

NATURAL LIGHTSCAPE

As with the acoustical environment and soundscape, the natural lightscape is an inherent component of “the scenery and the natural and historic objects and the wild life therein” protected by the National Park Service Organic Act of 1916. NPS *Management Policies 2006* section 4.10 requires the National Park Service to preserve a park unit's natural lightscape by reducing the use of in-park lighting, mitigating in-park lighting, and seeking cooperation from neighboring communities and partners to reduce the intrusion of artificial light into the park (NPS 2006a).

Park natural lightscapes are certainly treasured for their scenic value, but the importance of this resource goes well beyond natural scenery. Natural darkness is critical for wildlife, especially nocturnal wildlife, because the vital characteristics of their habitat include darkness. Natural lightscapes can also be part of the cultural landscape. Addressing natural lightscapes in only their scenic implication or human dimension is often inadequate.

The NPS Night Sky Program recognizes that the absence of artificial light has an intrinsic value, apart from any human experience or identified wildlife impact. The natural rhythm of light and darkness throughout the day, throughout the lunar month, and throughout the seasons is a natural process that is both fundamental to the ecosystem and to the character of the Reserve's geographic location on the planet.

Characteristics of Light at Night

As with sound, humans perceive light on a logarithmic scale. What is viewed as “twice as bright” may actually be 4 or 10 times brighter in reality. Further complicating our perception of light is the natural trait of human eyes to dynamically adjust to a wide range of brightness levels. This feature of our eyes is what gives rise to our ability to dark-adapt, and the issue of dark adaptation and transition between light and dark areas is especially critical in dark ambient environments such as parks. Thus it is difficult to say that a certain brightness of light or illumination level is “adequate for human vision” or “detrimental to dark adaptation” because our perception is frequently relative.

Nonetheless, the night sky has a predictable absolute brightness. The stars, Milky Way, zodiacal light, planets, and transient moonlight each add to the total light from the sky. Thus when examining impacts on the scenic quality of a starry sky, it is then possible to articulate thresholds and consequences. Night sky brightness is usually measured in stellar magnitudes per square arc second (msa), where the natural sky at the zenith (the point straight overhead which tends to be the darkest spot in the sky) is typically 22.0 msa as measured in the green color spectrum. In lieu of this logarithmic astronomical scale, sky brightness can also be expressed in terms of factors of a natural sky. So a sky brightness of 1.5 “skies” would be caused by 1 unit of natural sky brightness and 0.5 units of diffuse artificial light (50% brighter than natural).

In addition to the diffuse sources of light pollution that brighten the night sky, there are also point sources of light. Such points of glare in the nighttime scene may have a negligible

impact on the brightness of the night sky (i.e., the diffuse form of artificial light) but may cause substantial annoyance or glare. The articulation of glare and the establishment of thresholds is still being researched. Despite the lack of available thresholds, it is unequivocal that a relatively modest light can appear brighter than the brightest star for miles away and impact the natural lightscape. Whether the light is flashing, where it is positioned in the landscape, and its color will also influence the perception of naturalness in a nighttime scene.

The perception of light at night by wildlife is extremely varied. Some species are remarkably sensitive to light, and their fitness can be substantially impacted by small amounts of artificial light. Other animals use artificial light to their advantage, while still others show minimal acknowledgement of artificial light. As with human perception, the color of the light, the blinking of the light, and its position in the landscape are critical. Sea turtle hatchlings, for example, can be disoriented by both diffuse and point sources of light along coastlines and are especially sensitive to blue light; migrating passerine birds are often disoriented by communications towers and are more sensitive to red light; and frogs' behavior can be altered by even occasional sweeps of car headlights. Nocturnal insects are often attracted to point sources from substantial distances and the disruption of their movement can subsequently alter bat foraging and the pollination of nocturnal flowers. While species-specific information is scarce, some patterns are emerging in the literature that can be useful to guide lightscape management in a specific biome or ecoregion.

Lightscape Conditions in the Reserve

The NPS Night Sky Program has developed a sophisticated camera system to measure the diffuse light in the night sky (Duriscoe, Luginbuhl, and Moore 2007). This methodology allows for the subtraction of natural light sources to accurately track the contributions of diffuse artificial light. Although this system is optimized for human perception of the night

sky, it has not yet been used at City of Rocks National Reserve.

Nearby analogs, such as Craters of the Moon National Monument, combined with satellite images and models of light pollution, can be used to estimate conditions at the Reserve (Cinzano, Falchi, and Elvidge 2001). Using these, it is likely that the Reserve rates at Bortle Class 3 on the Bortle Scale—a qualitative scale relying on visual appearance to determine which of the 1 (pristine) to 9 (urban) classes a night sky falls within (Bortle 2001). Similarly, the zenith sky brightness estimate is approximately 21.8 msa or about 1.2 “skies,” indicating that artificial light at the zenith is about 20% greater than natural. Under the relatively good air quality conditions found in the Reserve, cities as far as 200 miles away are probably visible along the horizon.

On August 24, 2009, NPS staff collected some measurements with a Unihedron Sky Quality Meter, an inexpensive handheld unit that is used to rapidly assess a site. Measurements taken at 10:30 pm and 3:00 am MDT produced measures of approximately 21.7 msa, which is consistent with the 21.8 estimate noted above, based on the standard deviation of Sky Quality Meter's 0.15 bias (yielding an actual zenith measure of 21.85 msa). Thus indications are that zenith sky brightness is 15–20% greater than natural and likely to fall within Bortle Class 3.

Reliable baseline conditions will be established when the NPS Night Sky Program is able to take camera measurements at the Reserve. The long-term protection of the Reserve's relatively dark night skies demonstrates the need for facility lighting to be mitigated and the need for the Reserve to actively engage with surrounding areas to minimize light pollution where possible. Mitigation for park outdoor lighting should include the following considerations:

- Whether a light should be installed
- When the light should be on
- Full shielding of the light whenever possible
- The use of yellow or amber light to reduce ecological impact

- Using the minimum light necessary for the task, sometimes as low as one-tenth of what would be recommended in a suburban or urban setting
- Using the most energy efficient lamp

By using dark sky-friendly lighting in the Reserve, the National Park Service and Idaho Department of Parks and Recreation can more effectively encourage similar practices by park neighbors.

Experience of Night Sky

The protection of scenery in national park units extends to the nighttime as well. Many visitors seek out the view of the starry sky from national parks, as they have lost the ability to see such a sky from their homes due to light pollution. Other visitors have minimal affinity for astronomy, but the starry night sky serves as a backdrop for other pursuits. Maintaining night skies is part of keeping parks whole, and the scenery of the night includes more than just the view upward into the cosmos. The National Park Service defines the entirety of scenery at night as “natural lightscapes.” A natural lightscape is a place or environment characterized by the natural rhythm of the sun and moon cycles, clean air, and dark nights unperturbed by artificial light. It may also include the darkness of a cave or the ambience of a cultural scene at night. Natural lightscapes, including dark night skies, are not only a resource unto themselves but are an integral component of countless park experiences.

Environments that are naturally dark and mostly free from light pollution are very sensitive to small incremental additions of artificial light at night.

NATURAL SOUNDSCAPE

The natural soundscape is an inherent component of “the scenery and the natural and historic objects and the wild life therein” protected by the NPS Organic Act of 1916. NPS *Management Policies 2006* (§4.9) requires the National Park Service to preserve the park’s natural soundscape and to restore the degraded

soundscape to the natural condition wherever possible (NPS 2006a). Additionally, the National Park Service is required to prevent or minimize degradation of the natural soundscape from noise (i.e., inappropriate/undesirable human-caused sound).

Although NPS *Management Policies 2006* currently refers to the term “soundscape” as the aggregate of all natural sounds that occur in a park, the NPS Natural Sounds Program (NSP) has updated this term. Because the National Park Service works to protect and enhance park resources and visitor experiences, the Natural Sounds Program differentiates between physical sound sources and the human perception of those sounds. Currently the Natural Sounds Program refers to physical sound resources (such as wildlife, waterfalls, wind, rain, and cultural or historic sounds), regardless of audibility, as the acoustical environment, while the human perception of that acoustical environment is defined as the soundscape. This distinction will allow managers to create objectives for safeguarding both the acoustical environment and the visitor experience (or soundscape).

The National Park Service recognizes the acoustical environment as a resource in itself, separate from its relationship to wildlife and visitors. This section of the document focuses specifically on the Reserve’s acoustical environment. For a discussion on sound and its importance to wildlife and visitor experience, please refer to the “Soundscape, Lightscape, and Visitor Experience” section in this document.

Characteristics of Sound

Humans perceive sound as an auditory sensation created by pressure variations that move through a medium such as water or air. Sound is measured in terms of amplitude and frequency (Harris 1998; Templeton 1997). Noise, essentially the negative evaluation of sound, is defined as extraneous or undesired sound (Morfe 2001). Sound pressure level is proportional to sound power and is measured in decibels (dB). The decibel is a logarithmic scale unit that is commonly used to relate sound

pressures to some common reference level, thus producing a smaller, more manageable range of numbers. The loudness of a sound as heard by the human ear is estimated by an A-weighted decibel scale, where the A-weighting provides a formula for discounting sounds at low (less than 1 kHz) and high (greater than 6 kHz) frequencies. This adjustment for human hearing is expressed as dB(A). For this discussion, the A-weighted values are used to describe potential effects on the Reserve's acoustical environment and soundscape. Table 25 provides examples of A-weighted sound levels (unpublished NPS data).

TABLE 25. EXAMPLES OF SOUND LEVELS	
Reference Sound	dB(A) Level ¹
Normal breathing	10
Leaves rustling	20
Crickets (16 feet)	40
Normal conversation (5 feet)	60
2-stroke snowmobile (30 mph at 50 feet)	70
Helicopter landing at 200 feet	80
Heavy truck or loud motorcycle (25 feet)	90
Thunder	100
Military jet (110 feet)	120
Shotgun firing	130

¹An increase of 10 dBA represents a perceived (to human hearing) doubling of sound pressure level; that means 20 dBA would be perceived as twice as loud as 10 dBA. Thirty dBA would be perceived as four times louder than 10 dBA, etc.

Acoustical Conditions in the Reserve

Throughout 2008 and 2009, Reserve staff conducted acoustical monitoring at nine sites within the Reserve. These sites were representative of either the dominant vegetation zones or management zones in the Reserve (for more information on sites contact the Reserve). The acoustical monitoring efforts provided information on natural and existing ambient sound levels and types of sound sources. Natural ambient sound level refers to the acoustical conditions that exist in the absence of human-caused noise and represents the level from which the National Park Service measures

impacts on the acoustical environment. Existing ambient sound level refers to the current sound intensity of an area, including both natural and human-caused sounds. Natural ambient sound levels measured at the nine sites ranged from 21 to 27 dBA during the day and 18 to 37 dBA at night. Louder levels during the nighttime hours resulted from increased insect activity. Existing ambient sound levels ranged from 21 to 28 dBA during the day and 18 to 37 dBA at night (Reserve 2010a). The similarity between the natural and existing ambient sound levels is evidence of the quiet nature of the Reserve and the dominance of natural sounds therein.

The acoustical environment is vital to the function and character of the Reserve. Natural sounds include those sounds upon which ecological processes and interactions depend. Examples of such natural sounds in City of Rocks include:

- Sounds produced by birds, frogs, or insects to define territories or attract mates
- Sounds produced by bats to navigate or locate prey
- Sounds produced by physical processes such as wind in the trees, flowing water, or thunder

Among the wildlife sounds that can be heard in the Reserve are calls made by great horned owls, coyotes, common poorwills, common nighthawks, western scrub jays, and black-capped chickadees. Other natural sounds include thunderstorms, rain, and rock falls. Although natural sounds predominate throughout the Reserve, human-caused noise has the potential to mask these sounds. Noise impacts the acoustical environment much as smog impacts the visual environment, obscuring the listening horizon for both wildlife and visitors. Examples of human-caused sounds heard in the Reserve include aircraft (such as jets and propeller rotors), vehicles, heavy equipment, domestic animals (such as cows), and visitors. With the exception of one site, monitoring results revealed that the most dominant human-caused sound was high-altitude commercial jets. Specifically, commercial jets were audible between 1.8 and

18.6% of the time (over 24 hours), depending on the site. At the remaining site, vehicles were heard more often than jets. Military jets were detected at three of the monitoring sites, representing some of the loudest noise events (i.e., above 95 dBA) (NPS 2010a).

Despite the presence of various human-caused noise intrusions, the Reserve includes a diversity of natural sounds that make for a rich and spectacular acoustical environment.

Soundscape, Lightscape, and Visitor Experience

Experience of Sound

Our ability to see is a powerful tool for experiencing our world, but sound adds a richness that sight alone cannot provide. In many cases, hearing is the only way to experience certain aspects of our environment. Natural sounds often present the best opportunities to find wildlife because animals can be heard at much greater distances than they can be seen. The opportunity to experience an unimpaired acoustical environment is an important part of overall visitor experience and enjoyment. This perception of the acoustical environment represents what is referred to as the soundscape (see the “Natural Soundscape” section for further clarification on definitions). Many natural sounds such as bird songs or the rustling of leaves can have a calming and relaxing effect. Other sounds such as the chirp of crickets or a gentle breeze can trigger memories of pleasant past experiences.

Noise can distract visitors from the resources and purposes of a park. Increasingly, even those parks that appear as they did in a historical context do not sound the way they once did. Natural sounds are being masked or obscured by a wide variety of human-caused sounds. Thus, soundscape preservation and noise management is a complex aspect of achieving the NPS mission of preserving park resources unimpaired for the enjoyment of future generations.

Visitors to national park units often indicate that an important reason for visiting the parks is to enjoy the relative quiet that parks can offer. In a 1998 survey of the American public, 72% of people identified opportunities to experience natural quiet and the sounds of nature as an important reason for having national parks (Haas and Wakefield 1998). Additionally, 91% of NPS visitors “consider enjoyment of natural quiet and the sounds of nature as compelling reasons for visiting national parks” (McDonald, Baumgartner, and Iachan 1995). In studies of general visitor preferences, respondents consistently rate many natural sounds such as birds, animals, wind, and water as very pleasing (Pilcher, Newman, and Manning 2008). In 2008, a visitor survey conducted at the Reserve found that 86% of visitors felt that natural quiet and the sounds of nature were important resources for the National Park Service to protect. In addition, 75% of visitors surveyed felt that solitude was an important resource to protect (Reserve 2009b).

The presence of unwanted, uncharacteristic, or inappropriate sounds can interfere with or alter the soundscape and degrade the visitor experience. Uncharacteristic sounds or sound levels affect visitors’ perceptions of solitude and tranquility and can generate high levels of annoyance. Visitor evaluations of annoyance are affected by many factors, including the setting in which the sounds occur, the visitors’ recreational activities, and their expectations of quiet and solitude. Characteristics of the sound also contribute to levels of annoyance. Annoyance is related to rate of occurrence, duration, loudness and sporadic nature of sounds (Pilcher, Newman, and Manning 2008).

Impacts on visitors can be quantified at particular decibel levels. These impacts could include an increase in blood pressure and heart rate, sleep interruption, and speech interference. If the sound level goes over the particular decibel level listed in table 26 the potential for the impact in question increases.

TABLE 26. EXPLANATION OF SOUND LEVEL VALUES

Sound Levels (dBA)	Relevance
35	Blood pressure and heart rate increase in sleeping humans (Haralabidis et al. 2008)
45	World Health Organization's recommendation for maximum noise levels inside bedrooms (Berglund, Lindvall, and Schwela 1999)
52	Speech interference for interpretive programs (EPA 1974)
60	Speech interruption for normal conversation (EPA 1974)

GEOLOGY AND SOILS

Setting

The terrain at City of Rocks and nearby Castle Rocks showcases exemplary and picturesque landforms of granitic spires and domes protruding from the slopes of four enclosed upland mountain basins, or coves, in the Albion Range of southern Idaho (“Figure 14. Geology”). Unearthed by weathering and erosion of the Almo Pluton, these granite towers vary in size and shape and rise upwards of 600 feet above the basin floors. The coves are “hollowed out” of the City of Rocks anticline, a roughly north-trending elongated structural dome, or arch, of Archean granite gneiss and overlying Proterozoic metasedimentary rocks into which the Almo Pluton intruded.

These topographic basins, or coves, are known as (from north to south) Big Cove, Circle Creek Basin, Twin Sisters Basin, and Emigrant Basin. Four smaller upland basins also occur in the Reserve. The Castle Rocks rise from the central and north side of Big Cove, which is the largest of the basins and separated from the others by a high ridge of Precambrian granite gneiss studded with pinnacles. City of Rocks centers on the three other basins, which are also separated by spines of rock pinnacles. The anticlinal structure of these basins can be observed by

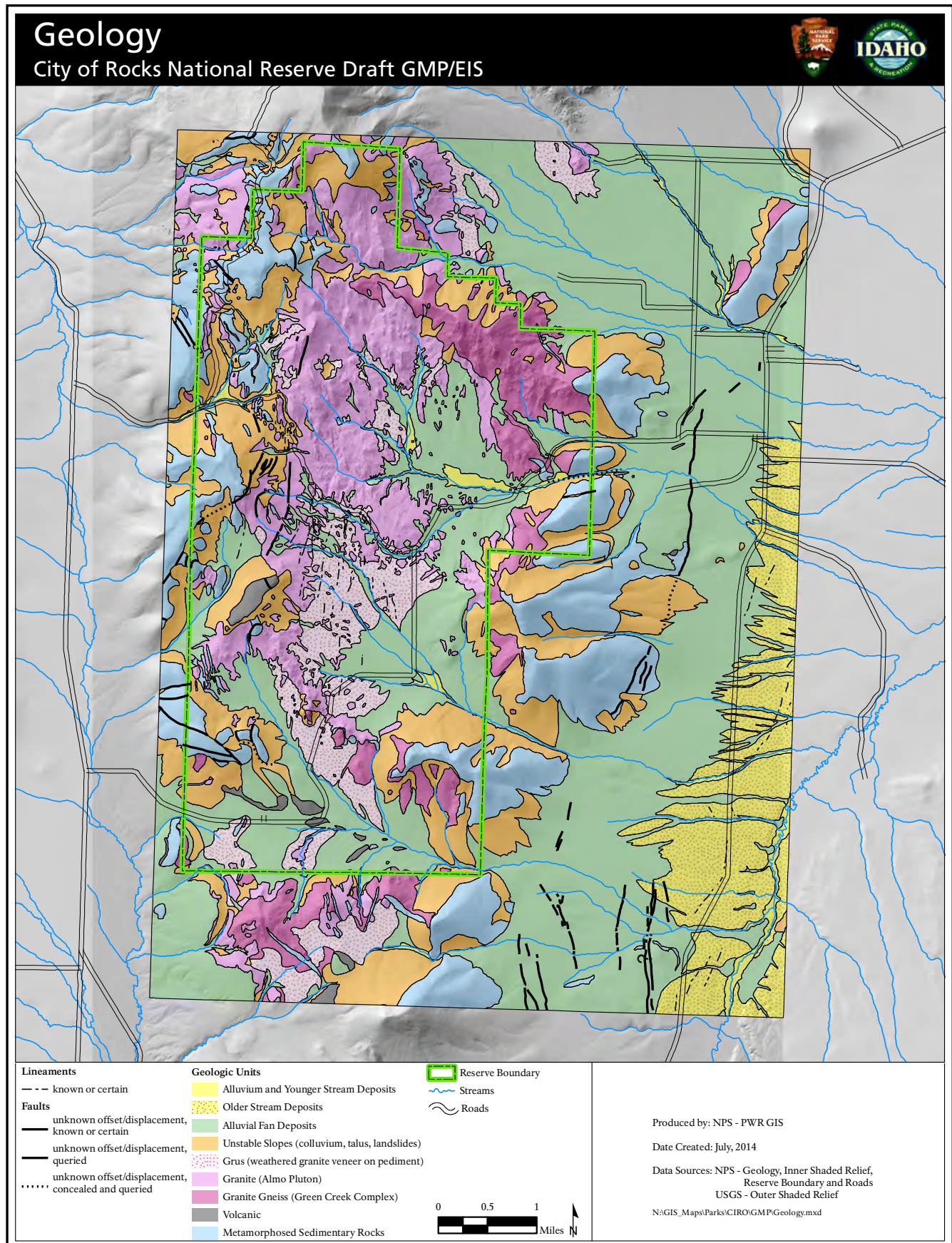
tracing the curvature of the Elba Quartzite that caps most of the surrounding ridges: the fold is reflected in the opposite dips of the prominent resistant quartzite on the east and west sides of the Reserve. The anticline appears to plunge south near the south border of the Reserve and to plunge north near the north end of the Almo Pluton at Castle Rocks, before tightly kinking and climbing again northward to form the Independence dome.

Three other gneiss-cored structural domes overlain by metamorphosed sedimentary rock (quartzite and marble) occur in the Albion Range. All are aligned in a chain-like fashion roughly north-northeast with the City of Rocks anticline. To the north, Big Bertha dome and Independence dome form topographically high promontories that undergird Mt. Harrison and Mt. Independence/Cache Peak. The smallest dome, Moulton dome, lies just south of the City of Rocks anticline and outside the Reserve. Of these four structural domes, City of Rocks is the largest. Granite of the Almo Pluton is exposed only in the southern two domes where differential weathering between the granite and metamorphic rocks has formed upland topographic basins that markedly contrast with the high relief of the two northern domes.

Topography

The high point of the Reserve is Graham Peak, which, at 8,867 feet, juts about 1,500 feet above the nearby pinnacles of Circle Creek Basin and about 3,000 feet above the alluvial plains of Big Cove, west of Almo. The low point in the Reserve is at Circle Creek, on the east side of the Reserve, at 5,650 feet in elevation. The upland topographic basins in the Reserve drain through narrow canyons cut into resistant hogback ridges around the perimeter of the mountain range. Five basins drain east to the Raft River. Two basins lie to the west of the crest of the Albion Mountains where one basin, Emery Basin, drains into Birch Creek and another basin, Trail Creek Basin, drains into Junction Creek.

FIGURE 14. GEOLOGY



Geologic History

The Albion Mountains stretch for 30 miles between the Idaho-Utah border to the south and the Snake River Plain to the north. Many of the mountain ranges in the Basin and Range of Utah, Nevada, and southeastern Idaho consist of unmetamorphosed, fossiliferous Paleozoic sedimentary strata. The Albion Range, however, is part of the Albion-Raft River-Grouse Creek metamorphic core complex, one of approximately two dozen metamorphic core complexes that extend from northern Mexico to southern British Columbia along the crest of the North American cordilleran (the system of mountain ranges along the western side of the Great Plains). The Albion Range exposes some of the most highly extended and deeply derived rocks of the Basin and Range geologic province (Miller 1980). Granite, granitic gneiss, schist and amphibolite belonging to the estimated 2.5 billion-year-old Green Creek Complex are the oldest rocks in the range. These basement rocks are unconformably overlain by Proterozoic and Paleozoic sediments that were metamorphosed during thickening of the earth's crust during the Sevier orogeny (Armstrong 1968).

The highland created by the Sevier orogeny later collapsed and extended. The formerly deep-seated Precambrian rocks then arched into broad domes and were structurally unroofed along large-scale low-angle normal faults (Miller and Bedford 1999). Later, the metamorphic core complex was intruded by granite of the Almo Pluton. Following emplacement of the granitic pluton at depths of approximately six miles, the region experienced rapid uplift. A combination of low-angle normal faulting and erosion has exhumed the Almo Pluton, and now, in the western part of the Reserve, rhyolitic ash flow tuffs from calderas associated with the nearby Yellowstone hot spot overlying the exposed granite are visible (Miller et al. 2008).

Most of these rhyolitic rocks were pushed or slid to the east on low-angle normal faults (forming the Jim Sage and Cottrell Mountains) as the core complex continued to rise (Miller et al. 2008). More recent uplift of the range has occurred along high-angle range-bounding normal faults.

The present shape of the Albion Mountains results primarily from the headward erosion of streams that are tributaries of the Raft and Snake rivers to the north and east and Birch and Goose creeks to the west.

Headward erosion by Raft River tributaries eventually breached resistant Proterozoic quartzites in the structural domes of the southern Albion Mountains. The Tertiary granite cores of the domes were much more easily weathered, particularly in regions of high joint density and hydrothermal alteration. Streams differentially eroded the weathered granite, leaving behind a spectacular landscape of domes, fins, and spires rising out of broad valleys in the interior of the range. Well-preserved cirques and moraines indicate that the highest peaks of the Albion Mountains—Cache Peak (10,339 feet) and Mt. Harrison (9,265 feet)—hosted alpine glaciers during the Pleistocene. Extensive areas of hummocky topography on the flanks of several peaks and ridges suggest that landslides have played an important role in the recent geomorphic evolution of the Albion Mountains.

Surficial Geology and Active Processes (Geologic Hazards)

Active geologic processes are the relatively more recent events that have acted on the landscape over a variety of climatic and tectonic conditions and that provide the best clues to processes likely to take place in the next several decades. These processes include those posing potential geologic hazards and those that are more passively forming today's landscape.

Most of the surficial material in the Reserve was deposited as alluvial fans or colluvium. Colluvium is a veneer of unsorted rock fragments that covers hillslopes. Other types of surficial deposits that result from unstable slopes (such as landslides, talus, and rock falls) also occur to a lesser degree. Alluvial processes include sheet wash on hillslopes and concentrated flows, flooding, and debris flows in stream channels. Intermittent high stream flows can accelerate formation of gullies and deposition of fans downslope.

In their respective basins, City of Rocks and Castle Rocks are intermittently surrounded by at least two stages of alluvial fans—active and abandoned. Abandoned fans represent at least one older depositional surface. Active fans are incised into the older fans on higher, steeper slopes before fanning out in the lower elevations of the basins. Cobbles and boulders weathered from the Elba Quartzite are exposed on the surfaces of the fans. Fans play an important role in transmitting and storing water, which contributes to subsurface weathering of the granite.

Colluvial processes and unstable slopes are driven by mass-wasting along hillslopes. Mass-wasting is the wholesale movement of rock and soil downslope by gravity and can have destructive consequences. Events such as rockfalls and landslides can be rapid and extremely powerful, whereas the slow movement of landslides and gradual creep of rock and soil downslope can be equally destructive but not generally catastrophic. The slower movement of rock and soil is commonly aided by sheetwash, as well as other processes. Surficial geologic features subject to mass wasting include talus deposits, colluvium, landslides, and the steeper areas of alluvial fans. An appearance of stability does not imply that alluvial and colluvial surfaces are stable, because the processes by which these deposits move can be destructive to infrastructure and life. Active stream channels and the steeper colluvial slopes are sites of repeated destructive events and are best avoided for construction of facilities.

A newly discovered fault that passes through the town of Almo and along the east margin of Smoky Mountain offsets Pleistocene alluvial materials as much as 18 feet (5 m) but does not appear to displace Holocene materials. Infrequent modern micro-seismicity and a large earthquake that occurred in the area several decades ago raise the possibility that local earthquakes could shake the Reserve severely in the future. This has implications for destabilizing mass-wasting features, toppling precariously perched rocks, and rolling rocks down hillslopes.

City of Rocks Pinnacles – A National Natural Landmark

The most prominent landscape features of the Reserve are its pinnacles. City of Rocks is geologically and geomorphically exceptional in its setting and the variety of sizes, shapes, height, weathering features, cloistering, and distribution of its pinnacles. Pinnacles are shaped by joints along which the rock more readily weathers. Three forms of pinnacles are common in the Reserve: spires, domes, and loaves. Loaves are elongate, rectangular masses with dome-shaped tops and probably form as a result of weathering along one prominent set of steep joints, parallel to the long direction of the loaf. They are also known as rock fins.

The Bread Loaves are an example. Domes, such as Clam Shell, form from exfoliation joints in a rock mass with weakly expressed or widely spaced steeply dipping joints. Spires may result from erosion of rock with two strongly developed sets of steeply dipping joints, such as seen on Lost Arrow.

Pinnacles are most heavily concentrated along the west, south, and north parts of the Circle Creek Basin, but can also be found in the western parts of Emigrant and Twin Sisters basins and along the west base of Smoky Mountain. Groups of pinnacles form three northwest-oriented ridges that separate the topographic basins. Granite Ridge separates Big Cove and Circle Creek Basin. The “rim” separates Circle Creek Basin and Twin Sisters Basin. And Twin Sisters Ridge separates Twin Sisters Basin and Emigrant Basin.

The pinnacles are not products of atmospheric weathering (which is actually slowly destroying them by forming caverns and pan holes on their surfaces), but are rather products of earlier subsurface weathering of rock along joints in the unsaturated zone above the water table. There, capillary movement of water along inter-grain micro-cracks weakens the rock to form a sandy detritus called grus and, along with chemical weathering, greatly reduces rock strength, particularly if joints are closely spaced. The shape and architecture of pinnacles is strongly

influenced by joints, along which percolating groundwater augments chemical weathering.

City of Rocks hosts a broad and interesting variety of weathering features on its pinnacles. These include several surface features and spheroidal cavities within the pinnacles. Weathering of the granite produces clay minerals from feldspar and mica. Unless protective surfaces form, this weathering accelerates disintegration of pinnacles with moisture, as the clays shrink and swell, and enhances capillary movement of moisture into the disintegrating granite. Disintegration typically causes grains of feldspar and quartz to crumble from the rock face, producing feldspar and quartz sand at the base of the pinnacle. Freeze-thaw cycles and diurnal heating and cooling during hot summer days bring about thermal expansion and contraction of crystals, which contributes to rock crumbling. Table 27 describes and explains the significance of weathering features found on pinnacles in the Reserve, as well as the various processes leading to their formation.

In 1973, Robert W. Jones of the University of Idaho evaluated the geology of the area, and in May 1974, Cassia Silent City of Rocks was designated a national natural landmark in recognition of the nationally significant geological and scenic values of its rock formations. Cunningham (1971) observed the dominance of bornhardts and scarcity of tors on the site, the range of elevations over which the landforms are distributed, and evidence that the landforms have been carved from the upper parts of a pluton, concluding that it is seldom that such a combination of circumstances may be observed in one place. At the time of designation, ownership included the Bureau of Land Management, the U.S. Forest Service (Sawtooth National Forest), the State of Idaho, and several private landowners.

One of the objectives of the NNL program is to encourage protection of the site. Although most of the pinnacles appear to be composed of competent granite, geological research for the area suggests that some rock formations in the Reserve are in a fragile condition because of natural geological and weathering processes

(Cunningham 1971; Miller et al. 2008; and Pogue 2008). A climbing impacts study of the Twin Sisters in 1993 concluded that rock climbing activities, including use of climbing equipment, had little direct impact on the geologic integrity of the two pinnacles (Reserve 1993). This is in part due to the siting of climbing routes based on rock competency, which precludes incompetent or fragile surfaces. Contrarily, rock scrambling by those with less experience in climbing, or with less knowledge of different rock types and their weathering, poses a greater risk for unwitting damage to fragile pinnacles and their delicate weathering features.

Economic Geology / Mineral Development

Mining of nonmetallic and metallic materials has occurred on a small scale in the area of the Reserve, but the Reserve itself has seen little mining activity. Only a few prospect pits, now abandoned, exist in pegmatite and skarn minerals. (Skarn minerals are lime-rich silicate minerals, such as diopside, talc, hornblende, feldspar, biotite, and phlogopite that develop in metamorphosed carbonate rocks.) Skarn occurs in only a few small locations in the Reserve.

Pegmatite dikes in the Almo Pluton commonly carry books and sprays of muscovite. Some of the larger accumulations have been prospected, and muscovite was separated and reportedly shipped in small quantities for use as insulation. One mining claim within the Reserve was declared abandoned and void by the Bureau of Land Management in February 1991. Its only workings were two shallow bulldozer cuts, each about 500 feet long. Smaller dikes (veins of igneous rock intruded into a host rock) also have minor prospects. An inventory and site evaluation of abandoned mine lands in the Reserve would identify not only the number of occurrences, but document wildlife habitat and use, cultural and historical resources, public safety concerns, and restoration needs.

TABLE 27. EXPLANATION OF COMMON WEATHERING FEATURES FOUND ON PINNACLES IN THE RESERVE

Type		Description /Definition	Process of Formation	Significance
Surface Feature	Case hardening	General term for hardening of granite surfaces by chemical processes that add cement (hematite) between mineral grains—hematite causes darkened red coloration of surface.	During dry periods capillary action draws water and dissolved elements from the rock; evaporation of water near the surface deposits dissolved materials between mineral grains.	Increases resistance of exposed granite surfaces to weathering and erosion; referred to as “patina” by rock climbers and may make suitable hand and foot holds.
	Blisters	Dark, thin (<1 cm) reddish hardened surfaces with curled edges or convex shapes.	Form quickly by thermal expansion, freeze-thaw, or wind-blown sand and are easily broken off with fingers or boots.	Common occurrence in the Reserve; may explain why so few emigrant inscriptions remain.
	Crusts	Dark brown polygonal shrinkage cracks, like bread crusts, with smooth polished surfaces firmly attached to pinnacle.	Thicker (0.4 – 0.8 inches) and more durable than blisters; cannot be cracked with bare hands or broken off by “sandblasting” during wind storms.	Polishing suggests long residence time of exterior crystals; associated with cavernous weathering features where protective crust has eroded away.
	Pitted	Dark-colored pocked or irregular, hard and smooth durable surfaces on pinnacles.	Form on inclined and horizontal surfaces.	Probably oldest of the case-hardening features.
Cavernous Weathering	Spheroidal weathering	Smooth-walled cavities, or hollows, behind or under case-hardened surfaces that have been penetrated by weathering.	Results from capillary movement of moisture into granular rocks, enhancing disintegration and formation of a hollow; the hollow then retains a higher moisture environment than its surroundings, which enhances further disintegration.	Indicates internal weathering and erosion of pinnacle leading to its gradual demise; friable surfaces where sand grains can be dislodged by the brush of a hand or blowing breath.
	Panholes (solution pans)	Round, irregularly shaped holes that widen with depth and have flat floors often covered with granitic sand.	Form on the upper surfaces of pinnacles and on pediments.	Retain rainwater and snowmelt for wildlife.
	Honeycombs / Tafoni	One or more adjoining concave cavities that penetrate the interior of a pinnacle.	Form on sides of pinnacles where internal joints intersect the surface or where case-hardened veneers are breached by granular disintegration.	Advanced stages of development form thin-walled honeycombs, windows, and arches; among the most fragile rock features in the Reserve; provide habitat for nesting birds and rodents.
	Flared walls	Concave zones at the base of a pinnacle adjacent to the soil line.	Probably results from enhanced capillary moisture from adjacent soils, which leads to enhanced rates of cracking and disintegration.	Advanced stages of development result in scalloped pinnacles at their base or “balance” rocks.

Almo Granite weathers to a sandy detritus called grus in many locations, where disintegrated granite can be easily quarried. Disintegrated granite is a good source for road material because it lacks large rock fragments and does not contain large amounts of clay. High quality in situ disintegrated granite sources generally occur near the crest of the range, where erosion has not been pronounced. Alluvium derived from disintegrated granite may also prove valuable as a disintegrated granite source, but generally alluvial sand and gravel deposits within the Reserve are poorly sorted and marginally suitable for use in road construction or as fill for general construction. Better-sorted sand and gravel deposits are available east of the Reserve in the fluvial deposits south of Almo. Two abandoned sand and gravel pits occur within the Reserve. The one near the west entrance is partially reclaimed and the other near the east entrance was restored under the NPS Disturbed Lands Restoration Program in 2004.

A plugged and abandoned exploratory oil well and two abandoned mica mines are on private land within the Reserve boundary. The Geologic Resources Division evaluated the data for the plugged well and determined that it was plugged properly. Although anticlines can function as structural traps for oil, emplacement of a pluton within this anticline is not conducive for petroleum occurrences.

Quartzite flagstone (commercially sold as Oakley Stone) has been quarried for decorative building stone in the vicinity of the Reserve, but no suitable sources occur within the Reserve.

SOILS AND SOIL EROSION

The majority of the soils in the Reserve are highly erodible. Water erosion hazards are severe for most mountainside soils and moderate for the gentler sloping alluvial soils. Wind erosion hazard is moderate for some of the finer textured soils in the Reserve if disturbed. Soil erosion has occurred near roads on steep slopes and intermittent stream channels such tributaries to Circle and Emigrant creeks. Erosion in these areas has formed deep gullies wherever the soil-binding vegetation has been disturbed. Some of the exposed soil banks are more than eight feet high and nearly vertical. In heavily grazed areas, most of the protective vegetative ground cover is lacking and soil is exposed to potential erosion by water and wind. In undisturbed areas of the Reserve the soils are better protected from erosional forces.

The NPS Soil Resources Inventory, working in conjunction with the USDA Natural Resources Conservation Service (USDA-NRCS 2011), completed the final soil survey and ecological site correlation for the entire Reserve in 2009. Twenty-three different soil taxa have been identified within the Reserve, with 25 detailed soil map units on the Reserve's soil survey legend. These soils have been grouped into 3 broad general soil map unit types and are represented by 6 general soil map units in the general soils map ("Figure 15. Soils").

Formation of the Soils at City of Rocks National Reserve

Portions excerpted from the *Soil Survey of City of Rocks National Reserve, Idaho* (USDA-NRCS 2011):

Parent Material

Area soils formed in residual, alluvial, and colluvial materials along with some loess (windblown soil) influence. Granites make up most of the rock in the heart of the Reserve. Soils formed in residuum and alluvium derived from this material. Residuum is unconsolidated material derived from in situ weathering of the parent material. Alluvium is unconsolidated material derived from fluvial re-working of residuum and earlier alluvium. Alluvium is usually found as sand bars in stream channels and as fan-shaped deposits from ephemeral streams on hillslopes. The granitic material weathers into a quartz and feldspar sand, called *grus*, that is easily eroded, resulting in soils that are generally young and not well-developed. Soils formed in this material include the *Kanlee*, *Ola*, and *Ricrest* series.

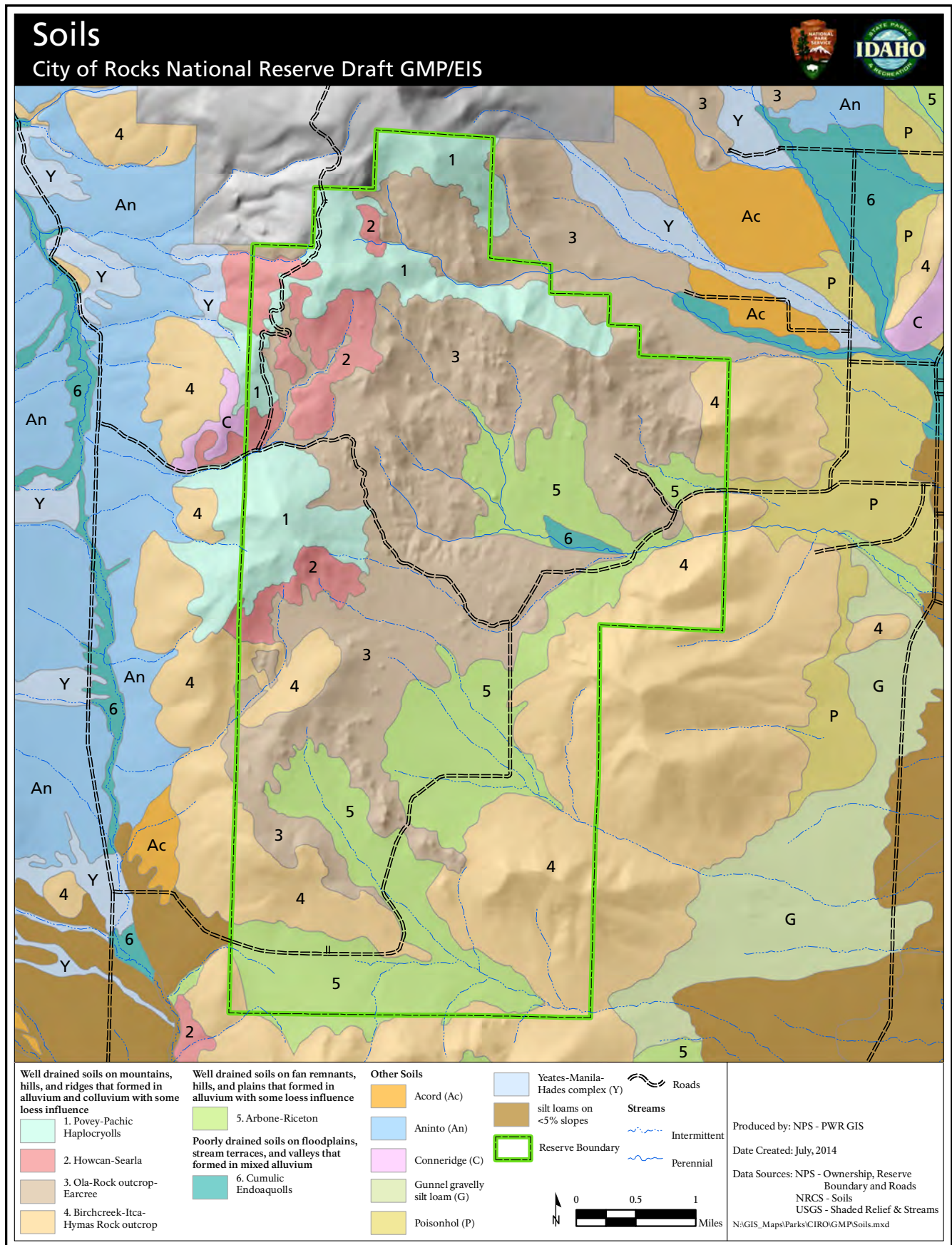
On alluvial fan remnants and hillslopes the soils are formed from deposits of Holocene and Pleistocene aged mixed alluvium weathered from igneous, sedimentary, and metamorphic rock. *Arbone*, *Poisonhol*, and *Riceton* soils formed in this alluvium.

Soils on Smoky Mountain, Cedar Hills, and to a lesser extent Graham Peak, formed primarily in residuum and colluvium of Elba Quartzite and mica schist. Colluvium refers to any loose, heterogeneous, and incoherent mass of rock fragments deposited primarily by mass-wasting (gravity), usually at the base of a steep slope or cliff (e.g., talus, scree). Quartzite weathers very slowly and has produced the stones, cobbles, and gravel found in these soils. As the mica schist material weathers, montmorillonitic clays form. The resulting soils have strongly developed clayey subsoil and no calcium carbonate accumulations. They include the *Birchcreek* and *Itca* soils. Less-developed soils formed from quartzite and schist colluvium include the *Howcan* and *Searla* soils. Holocene aged loess has influenced the associated *Conneridge* soils, resulting in a weakly developed soil that has an accumulation of calcium carbonate in the subsoil.

The warmest, driest part of the survey area is in the southwestern corner of the Reserve. This area receives approximately 14 to 16 inches of precipitation annually but on the southerly aspects this is reduced to an effective precipitation of about 12 to 13 inches. The soils in this part of the survey area are dominantly drier Mollisols. One *Aridisol*, the *Raft River* series, is present on southerly aspects. The soils have a dark-colored surface layer, with free carbonates at or near the surface and low to moderate amounts of organic carbon. They support relatively sparse stands of shrubs and grasses, and microbial action is low due to the dry conditions. The *Bezzant* and *Hymas* series are examples of the drier Mollisols.

Further north in this same precipitation zone the effective precipitation increases. The soils in this part of the survey area are also Mollisols. These soils differ from the slightly drier area in having a thicker dark surface layer free of carbonates, a layer of carbonate accumulation that occurs deeper in the soil or not at all, moderate to high amounts of organic carbon, and the capacity to support relatively good stands of shrubs and grasses. The *Arbone*, *Kanlee*, and *Riceton* soils are examples.

FIGURE 15. SOILS



The transition through the higher precipitation areas is fairly quick due to the rapid increase in elevation. The precipitation increases from about 16 inches to 25 or more inches. As the elevation increases and the average annual temperature decreases, the rate of evapotranspiration is reduced. This results in an increase of available moisture for plant growth, microbial activity, and soil leaching. The soils that developed under these conditions continue to be Mollisols that have had the carbonates leached out of their profile. These soils support a vigorous growth of plants, especially grasses. Because of the increased plant activity, organic matter has accumulated in the surface layer of the soil, making it dark. The leaching of lime from these soils has also promoted, in varying degrees, the formation and movement of clay. The dominant vegetation is grasses and shrubs, but trees are common in small, concave pockets and on north-facing slopes. Soils in these concave areas with trees are classified as Pachic Haplocryolls. The lush vegetation has produced an abundant amount of organic carbon, which has been deposited deep in the soil and results in very thick, dark horizons. A buildup of organic matter has also occurred due to the cooler temperatures, which slow microbial activity and the breakdown of organic matter. Povey soils are an example of soils formed under these conditions. In other positions on mountainsides the temperatures are warmer, and the movement of water through these soils has helped the movement and accumulation of clay deeper in the profile. Howcan and Hutchley soils form under these conditions.

Soils on convex ridges and mountaintops with westerly aspects are exposed to high winds much of the time and have very high rates of evapotranspiration, which drastically reduce the effective moisture capacity. The vegetation is sparse, microbial activity is low, and the content of organic matter is low. Generally, carbonates have not been leached much below the surface layer. Soils on these windswept ridges include Conneridge and Hymas soils.

Relief

The soils of the mountains generally contain a high percentage of rock fragments throughout their thickness and are well-drained. These characteristics reflect the steep landscapes on which the soils formed and the accelerated rate of erosion resulting from the steepness. Examples of these soils are Vitale, Hutchley, Jimsage, and Doodlelink soils. Soils on convex, south- and west-facing ridges and summits are subject to the highest rates of geologic erosion and have the least effective available moisture. Their soil temperatures are warmer, and they commonly dry out quickly. These soils are generally shallow to moderately deep and are well- to poorly developed, depending on parent material. Examples of less-developed soils are Conneridge, Dipcreek, and Hymas soils. Examples of well-developed soils are Birchcreek and Itca soils.

Eroded soil particles are transported in streams and deposited on alluvial fans. The coarsest materials dominate the upper slopes of the fans while finer sands and silts deposit on the lower slopes. Streams continue to erode and dissect the fans, creating fan remnants. Riceton soils form on alluvial fans while Arbone soils form on fan remnants. Poisonhol soils are extremely stony soils that form where two or more alluvial fans coalesce at the mountain front.

Time

Soils in the survey area vary greatly in age. Soils on the alluvial fans and stream terraces are generally young. These soils have formed in alluvium derived from active stream deposition and fluvial action. They have little horizon development other than the accumulation of calcium carbonates. Soils that are relatively young include Arbone, Poisonhol, and Riceton.

Soils on the dissected fan remnants in the southwest corner of the Reserve have had a more stable environment for their formation. Although they receive less moisture, carbonates have had time to accumulate and concentrate

in layers below the soil surface. These layers, or calcic horizons, have been cemented by silica in some of the older soils, forming duripans. The Raftriver soil type is a soil with a duripan.

Soils on the mountains and foothills differ greatly in age and degree of development. The relative age depends on the parent material and its components after weathering; aspect, which greatly determines how much heat the soil receives; and landscape position. Soils that formed in marble (limestone) generally have less development than those that formed in noncalcareous materials. Marble tends to erode more easily, resulting in steep slopes, and it contains carbonates, which retard the development of clay.

Soils that develop in parent materials consisting of rhyolite, mica schist, and quartzite tend to develop clay argillic horizons. Soils that developed in convex landscape positions and on ridges and summits are the youngest in appearance: they have either been subjected to geologic erosion or are cold enough to retard formation, they are shallow to moderately deep, and they generally have a sparse vegetative cover and carbonates near or at the surface. These soils include Conneridge and Hymas soils.

Soils that developed in the clay-forming parent material on south-facing slopes have well-developed argillic horizons. They are generally older than adjacent soils on north-facing slopes. They include Birchcreek and Itca soils. In the rhyolite mountains of the Cotterel and Jimsage ranges, northeast and east of the Reserve, soils on south-facing slopes have moderately well-developed argillic horizons. The treeless ridge northwest of Twin Sisters Ridge in the Reserve is capped by a rhyolite flow and has similar soil characteristics. Hutchley, Vipont, and Vitale soils are other examples.

On north-facing slopes, the soils are colder and geologic erosion is greater. Soils in these areas are much younger in appearance than those on south-facing slopes. They have little horizon development and generally have carbonates in the upper part of the profile. They include Doodlelink and Jimsage soils.

Hydric Soil Determinations

Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper portion of the soil. These soils under natural conditions are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation, and they may additionally meet the definition for wetlands.

Cumulic Endoaqualls (unit 6 on the general soil map shown in figure 15), is found on 0 to 4% slopes, and has been determined by the USDA Natural Resources Conservation Service to contain Kovich soil, which meets the definition of a hydric soil. Kovich soils make up approximately 5% of the soil map unit, and are found in floodplains and lower stream terraces. The location of Kovich soils may also coincide with wetlands if the vegetation and hydrologic criteria for wetlands are also present on the site. Table 28 lists general soil map units and their characteristics.

TABLE 28. GENERAL SOIL MAP UNITS AND THEIR CHARACTERISTICS

Broad General Soil Map Unit Type	Well drained soils on mountains, hills, and ridges that formed in mixed alluvium and colluvium with some loess influence				Well drained soils on fan remnants, hills, and plains that formed in alluvium with some loess influence	Poorly drained, very deep soils formed in mixed alluvium and loess on slopes of 0 to 4%
General Soil Map Unit	1. Povey-Pachic Haplocryolls	2. Howcan-Searla	3. Ola-Rock outcrop-Earcree	4. Birchcreek-Itca-Rock outcrop	5. Arbone-Riceton	6. Cumulic Endoaquolls
General Description	Well drained, shallow to very deep soils formed in alluvium and colluvium on slopes of 15 to 60%	Well drained, moderately deep to deep soils formed in alluvium, colluvium, and loess over residuum on slopes of 4 to 55%	Well drained, moderately deep soils formed in alluvium and colluvium over residuum on slopes of 4 to 55%	Well drained, shallow to very deep soils formed in alluvium, colluvium, and loess on slopes of 20 to 55%	Well drained, shallow to very deep soils formed in mixed alluvium and loess on slopes of 2 to 15%	Poorly drained, very deep soils formed in mixed alluvium and loess on slopes of 0 to 4%
Percentage of survey area	11	5	38	22	24	<1
Landscape					Hills, Plains	Plains
Landform	Mountain slopes	Mountain slopes, ridges	Mountain slopes, hillslopes, pediments, fan remnants	Mountain slopes, hillslopes	Fan remnants, coalesced fan remnants, hillslopes, stream terraces	Floodplains
Parent Material					Mixed alluvium with some loess influence	Mixed alluvium with some loess influence
Elevation	6,400 to 8,900 feet	6,500 to 7,800 feet	5,700 to 8,500 feet	5,600 to 7,100 feet	5,700 to 6,600 feet	5,800 to 5,900 feet
Frost-free period	30 to 60 days	65 to 95 days	65 to 95 days	65 to 95 days	65 to 95 days	65 to 95 days
Average annual precipitation	16 to 28 inches	16 to 24 inches	14 to 28 inches	14 to 18 inches	14 to 18 inches	14 to 16 inches
Minor components	Nurkey, Chokecherry, and rock outcrop	Ola, Pachic Haplocryolls, and Povey	Kanlee	Rubble land , Hutchley, Jimsage, and Poisonhol	Chayson, Rafriver, Poisonhol	Hardister, Kovich
Present uses	grazing, watershed, wildlife habitat and rock outcrop	grazing, watershed, wildlife habitat and Povey	grazing, recreation, watershed, wildlife habitat	grazing, watershed, wildlife habitat Jimsage, and Poisonhol	grazing, watershed, wildlife habitat Poisonhol	grazing, watershed, wildlife habitat

WATER RESOURCES

Watersheds and Hydrology

Much of City of Rocks is drained by easterly flowing intermittent streams in the headwaters of the Raft River. Four tributary watersheds, covering most of the Reserve, coincide with the four enclosed upland mountain basins of the Reserve's geologic setting ("Figure 16. Hydrology"). Graham Creek, heading on the south slope of Graham Peak, passes through Indian Grove before dropping steeply into the south part of Big Cove, where it converges with Almo Creek. Circle Creek has three prominent forks (North, Center, and South) that flow out of the Inner City of Rocks before converging on the floor of Circle Creek Basin. A fourth unnamed intermittent gully concentrically drains the south rim overlooking the Inner City and converges with Circle Creek above the Nicholson's ranch house. Circle Creek then flows through a water gap in the hogback ridge on the north end of Smoky Mountain. A fifth unnamed intermittent stream drains Steinfeld's Basin near the east entrance to the Reserve and dissipates into the alluvial fan east of Smoky Mountain before merging with Circle Creek. Several unnamed intermittent streams draining Twin Sisters Basin converge before passing through Heath Canyon on the south end of Smoky Mountain. Two prominent unnamed intermittent streams in Emigrant Basin, south of Twin Sisters and Pinnacle Pass, converge at the Kelton-Boise stage station and exit the Reserve through Emigrant Canyon. Stream gradients in the southern Albion Range are steep, averaging 370 feet per mile on Almo Creek, 520 feet per mile on Graham Creek, and 360 feet per mile on Circle Creek.

The crest of the Albion Range runs the length of the western part of the Reserve and is a regional watershed divide. Trail Creek and an unnamed drainage in the southwest corner of the Reserve are intermittent west-flowing headwater tributaries of Junction Creek, which flows south into the Raft River. From here the Raft River flows east through the Upper Narrows, which topographically separates the south end of the Albion Range from the west end of the Raft River Mountains. The Raft

River Range is one of the few east-west oriented intermountain ranges in the coterminous United States. Taylor Creek and Emery Creek source from springs north of Bread Loaves and flow west through Emery Canyon, after converging, to Birch Creek. Sheet wash west of Indian Grove Overlook and Finger Rock also flows west into a few unnamed intermittent tributaries of Walters Creek and on to Birch Creek, which flows north to Goose Creek and eventually the Snake River. The headwater divide between Junction Creek and Birch Creek is a short distance south of the Oakley Road-Emery Canyon Road junction.

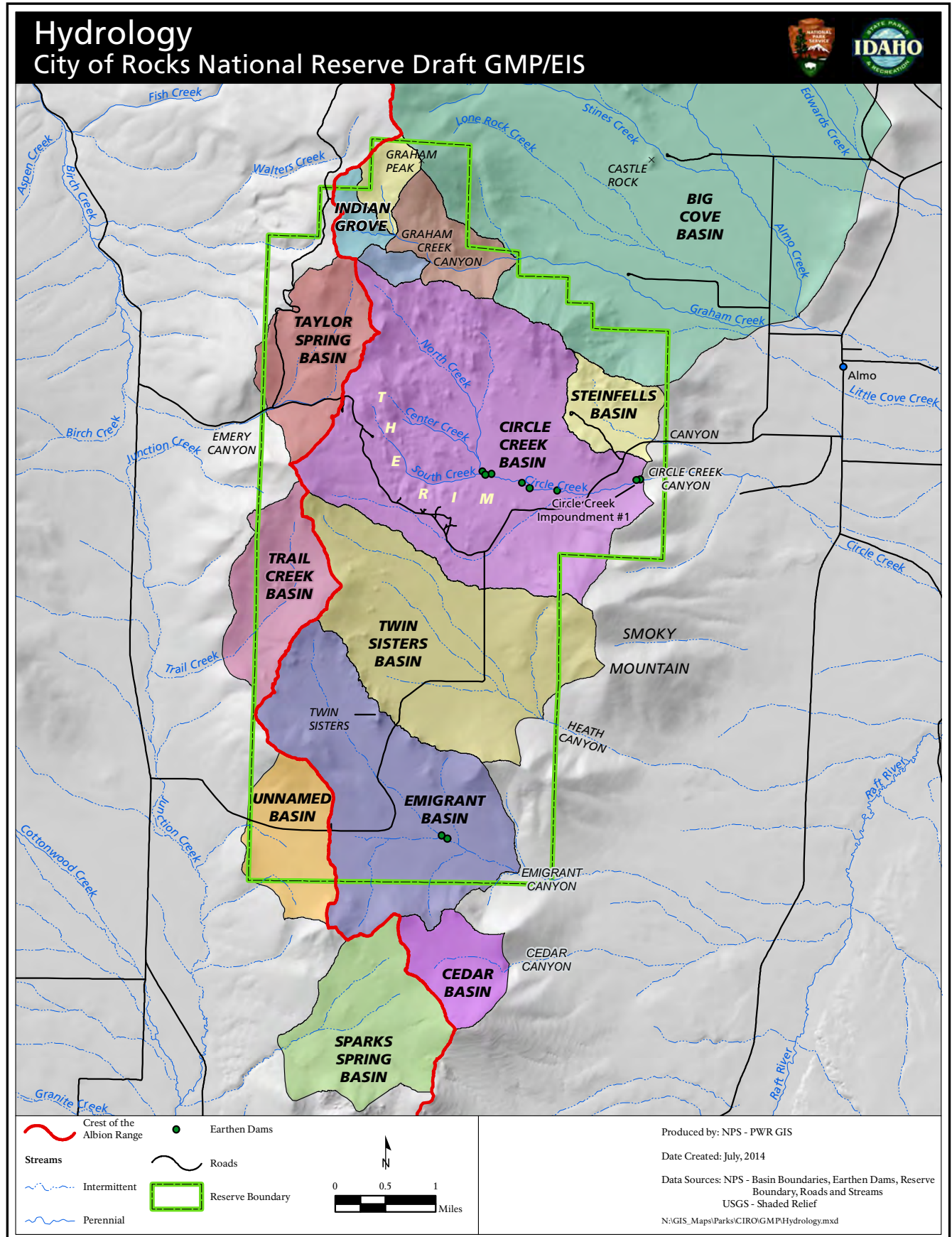
Surface Water and Impoundments (Dams)

Surface water is limited in the Reserve and is present in only a few locations: small headwater streams, springs, stock ponds, natural depressions in bedrock such as panholes, and rocky barriers on slopes that catch rainfall and runoff.

A number of springs are found in the Reserve, and most are used for grazing. Notable springs include Tea Kettle, Bath Rock, Taylor, Indian Grove, Kempton, Logger, Mica, Button, Willow, Trail Canyon, Mahogany, and Walters Creek. In most cases a head box is present, and water is piped away from the source for use by cattle.

Circle Creek has seven earthen dams and one alluvial earthen dam. There are two abandoned stream-flow diversions associated with impoundments on Circle Creek. All but two contain water in impoundments that are about one-half acre in size and are used for watering stock. Another stock pond is located along Taylor Creek north of Bread Loaves, and two stock ponds associated with the Kelton-Boise stage station occur along Emigrant Creek. The upper dam is breached, releasing water to the lower pond. All earthen dams and stock ponds in the Reserve are privately owned. Any dams on lands acquired by the National Park Service will be evaluated and placed on the NPS official inventory of dams, and any associated stream control structures would become subject to the NPS Dam Safety Program (2012 NPS Director's Order 40).

FIGURE 16. HYDROLOGY



Circle Creek has been listed as an assessment unit that is intermittent by the Idaho Department of Environment Quality, and as a result was unable to determine attainment relative to presumed uses (IDEQ 2011). Most months of the year surface water is also present in natural rock pools such as those atop Bath Rock and Shangri La. The quality of this water has not been tested and little baseline information exists. Smaller depressions, such as panholes, intermittently retain water after snowmelt, rainfall, and runoff.

WATER QUALITY

Surface water in the Reserve that flows to Goose Creek and Raft River is protected for use as agricultural water supply (in this case only for livestock use), cold water habitat, salmonid spawning, and primary and secondary contact recreation under Idaho water quality standards. Surface water in the Reserve is used primarily for livestock purposes. Some stream flow is reduced during the summer when water is diverted for livestock. Water quantity and quality of the Reserve streams and springs have not been extensively studied, but in 2009 the UCBN I&M group began monitoring five core water chemistry parameters (dissolved oxygen, pH, specific conductance, temperature, and turbidity) in the North Fork, South Fork, and Main Stem of Circle Creek.

The UCBN I&M monitoring program re-evaluates core water chemistry parameters every three years. Preliminary results indicate that all core parameters were within the general state regulatory thresholds, with the exception of turbidity and dissolved oxygen in the North Fork and main stem of Circle Creek (NPS-UCBN 2009). Elevated stream turbidity typically occurs after rain storms and is primarily due to bank erosion, the predominant cause of which is the extensive use of the riparian area and stream channel by livestock. This use has removed much of the vegetation needed for soil stability. Dissolved oxygen was below the regulatory threshold for one hour and is not considered a threat to water quality at this time. All three streams were also sampled for

macroinvertebrates. Almo, North Fork Circle Creek, South Fork Circle Creek, and Circle Creek are considered “undesignated surface waters” meaning that they have not been assigned a beneficial use (IDEQ 2012).

The 2009 report details macroinvertebrate results and generally indicated good to very good water quality, with slight to some organic pollution. Samples were collected from Almo, North Fork Circle Creek, South Fork Circle Creek, and main Circle Creek. Macroinvertebrates were also collected in 2012. The UCBN I&M program also monitored water chemistry parameters in 2012. Preliminary results indicate that all five core parameters on each stream were in state criteria for cold water life designation (Starkey 2010).

Most of the soils in the Reserve are highly erodible, and several severely eroded areas contribute sediment to streams during high flow caused by storm events and spring snowmelt. High stream sediment and associated turbidity can negatively affect stream organisms both in and outside the Reserve, far downstream from the source of the particulate matter. Livestock use in riparian zones increase localized soil erosion and add fecal coliform to streams and springs.

Groundwater

Due to the predominance of granite (a crystalline rock with very little porosity and permeability), little is known about the occurrence and availability of groundwater in the Reserve. In 1989 a 70-foot well was drilled at the north end of Bread Loaves. This well provides 1.5 gallons per minute and is operated by a hand pump. Two additional wells were drilled in the Reserve in 2000: one near Bath Rock, which currently provides the primary public source of potable water, and the other near the Juniper group campsite, which is also the only campsite to accommodate horses.

In 1997 a 320-foot well was drilled outside the Reserve near Circle Creek to provide water for the Smoky Mountain Campground, which was developed in 2008. This well is reported to

provide up to 20 gallons per minute. Two other deep wells were drilled near the Reserve housing area and headquarters in 1995 and 2003. Water quality increases in wells closer to the Reserve and decreases in quality east of the Reserve in Almo Valley. The chemical components of well water in and around the Reserve are within criteria for designated use. Table 29 summarizes water well information.

TABLE 29. SUMMARY OF WATER WELL INFORMATION							
Well	1	2	3	4	5	6a	6b
Owner	State of Idaho	State of Idaho	State of Idaho	State of Idaho	State of Idaho	National Park Service	National Park Service
Use	Public Water Supply	Domestic-Single Residence	Domestic-Single Residence	Domestic-Public Water Supply	Domestic-Public Water Supply	Domestic-Multiple Individual Users	Domestic-Multiple Individual Users
TWP	15S	15S	15S	15S	15S	15S	15S
RNG	23E	24E	24E	23E	23E	24E	24E
SEC	26	27	34	36	36	27	27
Tract	NESE	SENE	SWNW	NWNWNW	NWNW	SENE	SENE
Well Address	(City of Rocks National Reserve)	Almo Rd	1.75 miles SW of Almo	City of Rocks National Reserve	City of Rocks National Reserve	Approx. 3035 Elba-Almo Rd	Approx. 3035 Elba-Almo Rd
Well Name	Campground (Bread Loaves)	IDPR Almo (housing)	IDPR Almo (Smoky Mountain Campground)	Bath Rock	Emigrant (Juniper Campground)	NPS Almo (Head-quarters)	NPS Almo (Head-quarters)
Gallons Per Minute	1.5	5	20	8	3	25	25
Static Water Level (feet)	10	132	60	14	105	218	218
Total Depth (feet)	205	300	320	236	166	310	310
Casing Depth (feet)	72	227	300	236	168	285	285
Diameter of Casing (inches)	6	10	12	6	10	6	6
Construction Date	9/5/1989	11/6/1995	2/20/1997	6/29/2000	6/27/2000	7/1/2003	10/18/2011
Permit Number	716699	716953	716954	765050	765051	803800	862259
Well Tag Number				D0015103	D0015104	D0016745	D0060564

Source: Idaho Department of Water Resources Well Driller Reports (Logs) 2012b.

Wetlands

Many small wetlands exist in the Reserve, typically in riparian areas next to streams and springs. Because of the aridity of the region, these wetlands, although quite small, are important resources for many forms of life. Wetlands in the Reserve have been mapped from aerial photos by the U.S. Fish and Wildlife Service (see “Figure 17. National Wetlands Inventory”).

Some actions associated with the general management plan, such as continuing grazing in proposed boundary expansion areas and implementing recent grazing management plan recommendations, will probably affect wetlands within the Reserve in the future. Therefore, these actions if implemented would need to be addressed in a future statement of findings for wetlands associated with an update to the grazing management plan to comply with Executive Order 11990. Because specific impacts associated with these proposed actions cannot be identified at this time, the NPS Water Resources Division has concurred with this approach.

Other seasonally wet areas occur in subtle topographic catchments that retain soil moisture after snowmelt and summer storms or from recharge by soil water percolating down slopes. These areas are most easily recognized by a change in vegetation from their surroundings, supporting more grass and wildflowers and less sagebrush. These areas may be found on broad upland plains and sheltered areas around pinnacles. Soils in these areas generally are not deep, and underlying impermeable bedrock enables the soil to retain saturation longer than deeper soils or soils on steeper slopes. These areas do not qualify as jurisdictional wetlands, but function as small oases that support wildlife, insects, and plants that might not thrive elsewhere in the Reserve.

VEGETATION

Extensive plant surveys have been conducted within the Reserve. The most definitive inventory, *Vascular Plants of City of Rocks: An*

Annotated Checklist, was published by Tom John in 1995 and documents 493 species and additional varieties (John 1995). Wallace Keck, park superintendent, has spent more than 10 years retracing John’s steps, reconfirming and photographing much of the inventory and adding other species to the list. Some additions since John’s list include: prairie smoke (*Geum triflorum*), saxifrage (*Saxifraga rhomboidea*), and Brewer’s monkeyflower (*Mimulus breweri*). Other NPS research teams and contractors have also documented overlooked species, bringing the total to more than 500, plus additional subspecies and varieties (for a total of approximately 532 vascular plant species).

One of the Reserve’s most notable qualities is the large degree of biological diversity concentrated in a relatively small area. The great variety of textures, colors, and shapes in the natural landscape contributes considerably to the Reserve’s scenic quality. Visitors immediately connect with the commonality, striking beauty, fragrance, or ethnographic value of plants such as pinyon pine, juniper, mountain mahogany, quaking aspen, sagebrush, rabbitbrush, arrowleaf balsamroot, lupine, and prickly-pear cactus.

Situated in the northern Great Basin, the Reserve is a mosaic of many habitats (“Figure 18. Vegetation”). The Reserve’s 1996 comprehensive management plan identified seven plant communities, including big sagebrush/grasslands, pinyon-juniper woodlands and forests, mixed scrub, conifer/aspen woodland forest, riparian scrub and herbaceous wetlands, mountain mahogany scrub, and high-elevation meadows and ridges. Unvegetated areas (bare ground and rock) account for 3.8% of the Reserve. There are other detailed and complex ways to classify the vegetation communities (Aho and Forman 2010); however, the seven listed above remain the simplest for communicating the affected vegetation environment for the general management plan and are most frequently used in related reports and studies.

FIGURE 17. WETLANDS

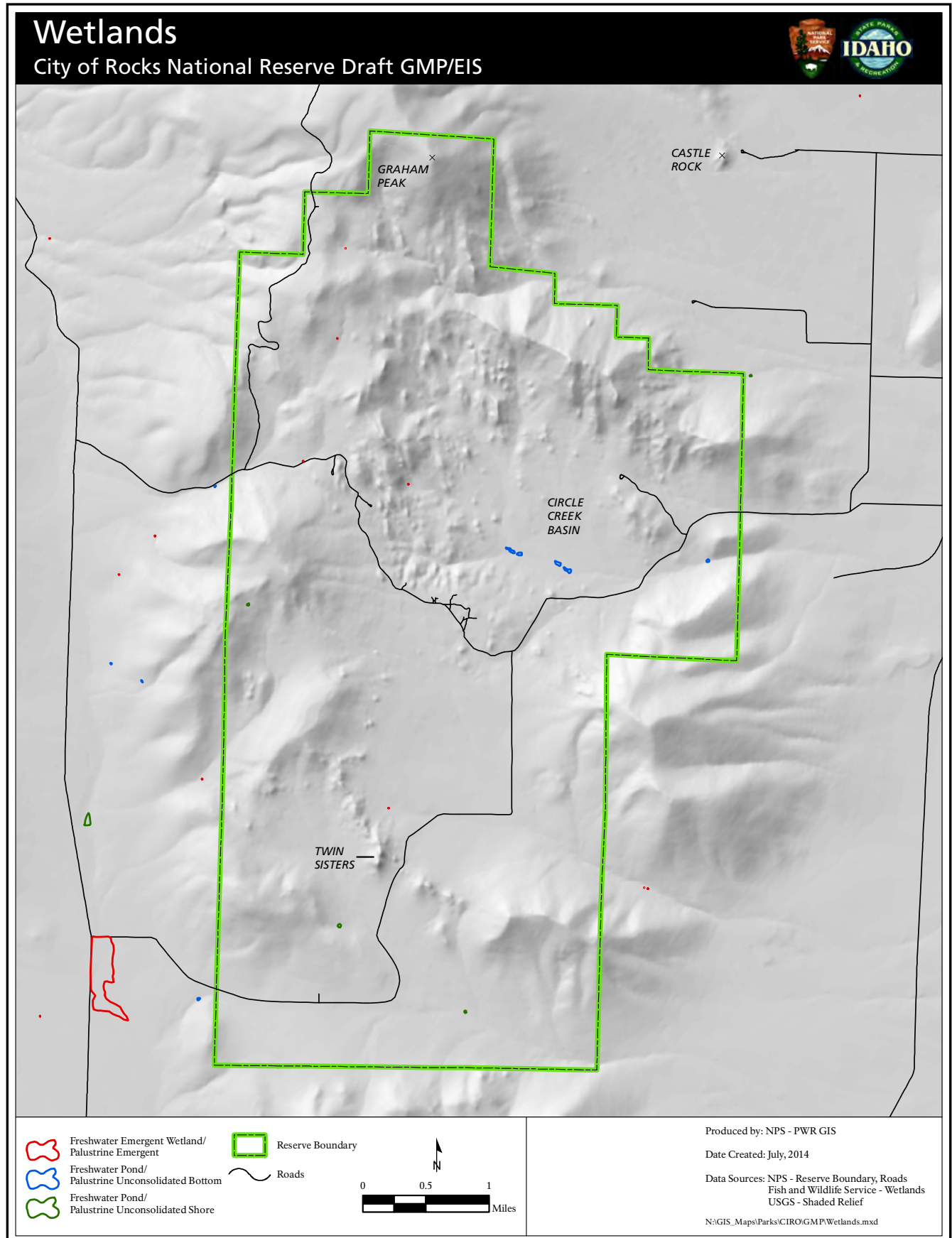
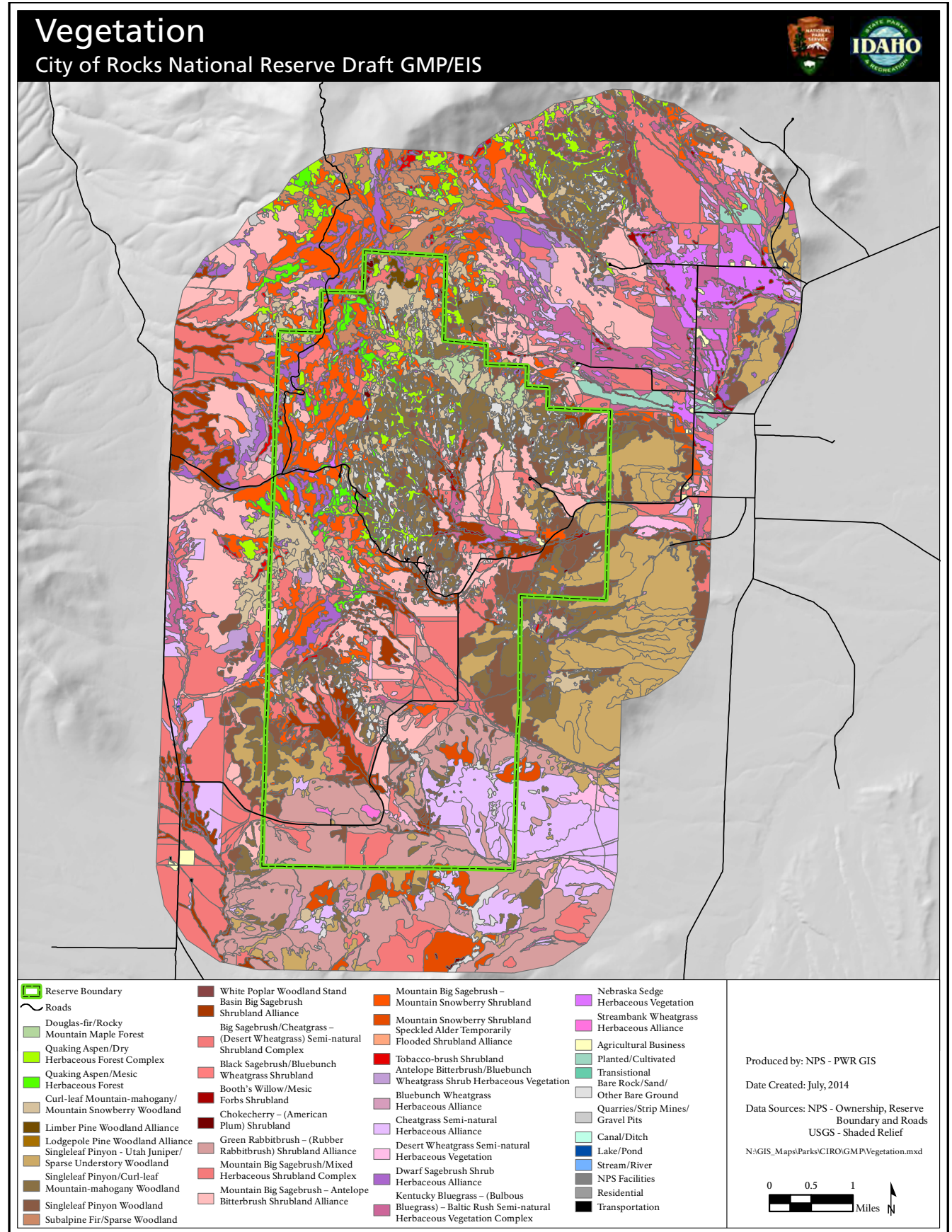


FIGURE 18. VEGETATION



Big Sagebrush/Grasslands

Big sagebrush/grasslands cover the open basin floors that represent approximately 37% of the Reserve. This community originally would have appeared as a mosaic of open stands of big sagebrush (*Artemisia tridentata*), with an understory of native perennial grasses such as Idaho fescue (*Festuca idahoensis*). Sagebrush steppe vegetation in its natural condition is scarce in Southern Idaho. Continued human and livestock use have modified the community into now-monotypic stands of big sagebrush interspersed with plants of little or no forage value, such as tansy mustard (*Descurainia pinnata*), Russian thistle (*Salsola kali*), cheatgrass (*Bromus tectorum*), and halogeton (*Halogeton glomeratus*), which is toxic to livestock. Crested wheatgrass (*Agropyron cristatum*), introduced in the early 1950s range improvement programs, dominates the understory where the range has been improved for livestock.

Recent monitoring surveys conducted by the National Park Service have documented the persistence of high-value sagebrush steppe with exceptionally low levels of cheatgrass and other nonnative species infestations (such as the Trail Canyon and Emery Canyon areas; Stucki and Rodhouse 2012). However, other areas, particularly those that have burned in recent years (such as the southwestern portion of the Reserve) are degraded and heavily infested by nonnative species (Stucki and Rodhouse 2012). Wildfire has the potential to remove native vegetation, creating opportunities for accelerated cheatgrass invasion, thereby posing a risk to the integrity of the Reserve's steppe communities.

Pinyon-Juniper Woodlands and Forests

Pinyon-juniper woodlands are located in rocky and rugged terrain. This plant community covers approximately 37% of the Reserve. The singleleaf pinyon (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) that comprise the community can grow to 30 feet in height but are generally scrubby, fewer than 15 feet tall, and almost as wide. This forest type is the most

visibly prominent on the slopes surrounding the basins. Comparing present-day views to a historic photograph, circa 1871–72 (National Archives #77 KS-44-105), indicates that the pinyon-juniper woodlands have expanded in range, encroaching into previously open spaces. The Reserve has one of the few old-growth pinyon forests remaining in Idaho and contains the largest pinyon in the state. Pinyon forests are also home to a number of Idaho's species of conservation concern, including cliff chipmunk, goshawk, pinyon jay, juniper titmouse, and Virginia's warbler.

Mixed Scrub

Confined to the higher slopes and representing approximately 9% of the Reserve is the vegetation community called mixed scrub. This visually open community includes such plant species as big sagebrush (*Artemisia tridentata*), snowberry (*Symphoricarpos oreophilus*), Utah serviceberry (*Amelanchier utahensis*), and antelope bitter brush (*Purshia tridentata*), along with other shrubs, grasses, and herbs growing in openings between the shrubs. Mule deer, sage grouse, green-tailed towhee, and broad-tailed hummingbird favor these areas.

Mountain Woodlands

Mountain woodlands are found in approximately 7% of the Reserve and include groves of quaking aspen (*Populus tremuloides*), stands of subalpine fir (*Abies lasiocarpa*) at Indian Grove, Douglas fir (*Pseudotsuga menziesii*) on the north slope of Granite Mountain, and lodgepole pine (*Pinus contorta*). They are often interspersed with high-elevation meadows located on the uppermost stony grassy slopes of the Reserve. The quaking aspen community occurs in canyons or other areas containing perennial or intermittent streams. These groves can include narrowleaf cottonwood (*Populus angustifolia*), mountain alder (*Alnus incana*), and serviceberry (*Amelanchier alnifolia*), with chokecherry (*Prunus virginiana*) and mountain snowberry (*Symphoricarpos oreophilus*) creating visual thickets below the slender tree

trunks. Mountain woodlands are an important vegetation community for many species, such as the northern goshawk, Clark's nutcracker, red-naped sapsucker, Lewis' woodpecker, calliope hummingbird, olive-sided flycatcher, ruby-crowned kinglet, elk, and moose. Many herbaceous plants are also confined to these mountain woodlands, such as Jacob's ladder (*Polemonium pulcherrimum*), Colorado columbine (*Aquilegia coerlea*), and heartleaf arnica (*Arnica cordifolia*).

Riparian Vegetation

Riparian vegetation is limited to a small portion of the Reserve adjacent to stream courses and springs. The most outstanding of these are the North Fork of Circle Creek and Graham Creek. Riparian zones are associated with water and occur as important transitions between aquatic and terrestrial communities. These transitions have a greater quantity and diversity of plant species than adjoining land. They provide food, water, and cover for both wildlife and livestock. Overgrazing has altered many of the riparian areas in the Reserve, causing accelerated soil erosion and elimination of typical riparian plant species. Typical species of this plant community include willow (*Salix sp.*), smooth scouring rush (*Equisetum laevigatum*), Rocky Mountain maple (*Acer glabrum*), mountain alder (*Alnus incana*), red osier dogwood (*Cornus sericea*), and yellow monkeyflower (*Mimulus guttatus*). Birds often dependent on these communities include the sand hill crane, willow flycatcher, warbling vireo, house wren, hermit thrush, yellow warbler, MacGillivray's warbler, and song sparrow. Riparian vegetation covers about 2.6% of the Reserve.

Mountain Mahogany Scrub

On some higher mountain slopes of the Reserve—including Mahogany Mountain, the north slope of Granite Mountain, and the south slope of Graham Peak—nearly pure stands of curlleaf mountain mahogany (*Cercocarpus ledifolius*) are present. They cover only 2.4% of the Reserve and most often occur in less rocky areas, next to or surrounded by pinyon-

juniper woodland. Other species associated with this community include mountain snowberry (*Symphoricarpus oreophilus*), arrowleaf balsamroot (*Balsamorhiza saggitata*), Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and steershead (*Dicentra uniflora*). Birds commonly found in these pure stands include the mountain chickadee, bushtit, blue-gray gnatcatcher, and chipping sparrow. Mule deer find cover here.

High-Elevation Meadows and Ridges

Mountain meadows near upper ridges in the Reserve contain a combination of grasses, herbs, sedges, and wildflowers. Easily mistaken as an alpine community, these meadows result from exposed and windswept ridges, where conditions are unprotected and harsh in winter. Locations of this type within the Reserve include the ridges from Finger Rock to Graham Peak and Smoky Mountain peak. Plant species here grow low to the ground and often do not bloom or peak until late June through mid-July. One of the Reserve species of concern, Simpson's hedgehog cactus (*Pediocactus simpsonii*), is common in these areas (IDFG 2011 and IDFG 2012a). Other plants in this community include low sagebrush (*Artemisia arbuscula*), fleabane (*Erigeron asperugineus*), pale paintbrush (*Castilleja pallens*), and cushion phlox (*Phlox pulvinata*). Only 2% of the Reserve contains the high-elevation meadow community. The high ridges and meadows are sensitive to impacts, and vehicle access to places such as Graham Peak should be restricted to authorized vehicles on the rare occasions required to maintain the radio repeater system. Unauthorized camping off Logger Spring Road within the Reserve has caused long-term damage to a number of localized areas. Bird species that favor high-elevation meadows and ridges include the white-crowned sparrow, Brewer's sparrow, fox sparrow, gray-crowned rosy-finch, golden eagle, sage grouse, and northern harrier.

Rare and Sensitive Plant Species

Table 30 lists the special status plant species (IDFG 2011, 2012a).

TABLE 30. SPECIAL STATUS PLANT SPECIES*			
Plant Species	Status	Habitat Occurrence	Effect of the Alternatives
Davis wavewing (<i>Cymopterus davisii</i>)	S3	Easterly slope just north of Graham Peak (known only from the Albion Mountains)	All proposed alternatives provide the current level or more protection to this habitat.
Simpson's hedgehog cactus (<i>Pediocactus simpsonii</i>)	S3	Locally abundant along the ridgeline west of Indian Grove and upward. Can also be found on nearly every elevated ridge in the Reserve, though not as abundant as in Indian Grove.	All proposed alternatives provide the current level or more protection to this habitat.
Kruckeberg's sword-fern (<i>Polystichum kruckebergii</i>)	S2	Shaded rock clefts on south slope of the ridge between Circle and Graham Creeks. Also at Castle Rocks.	All proposed alternatives provide the current level or more protection to this habitat.

*State designations:

S1 = Idaho State Critically Imperiled: Listed by the Idaho Conservation Data Center as at high risk because of extreme rarity (often 5 or fewer occurrences), rapidly declining numbers, or other factors that make it particularly vulnerable to rangewide extinction or extirpation.

S2 = Idaho State Imperiled: Listed by the Idaho Conservation Data Center as at risk because of restricted range, few populations (often 20 or fewer), rapidly declining numbers, or other factors that make it vulnerable to rangewide extinction or extirpation.

S3 = Idaho State Vulnerable: Listed by the Idaho Conservation Data Center as at moderate risk because of restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors that make it vulnerable to rangewide extinction or extirpation.

Nonnative Plants, Invasive, and Noxious Weeds

There is no geographic area free from nonnative, invasive, or noxious weeds, but much of the Reserve remains dominated by native and intact ecosystems. Species such as common dandelion (*Taraxicum officinale*), desert alyssum (*Alyssum desertorum*), and bur buttercup (*Ceratocephalus testicularis*) often occur where cattle congregate or where human activity results in ground disturbance. Tumble mustard (*Sisymbrium altissimum*), flaxweed (*Descuriana sophia*), crested wheatgrass (*Agropyron desertorum*), and cheatgrass (*Bromus tectorum*) are also easily found across the spectrum of habitats. These species will probably never be eradicated, and no attempt to do so is planned. Of the 60 species of nonnative plants listed by Tom John in 1995, only 10 state-listed noxious weeds are present in or adjacent to the Reserve. These are treated for containment or eradication. Species most

aggressively treated include Canada thistle (*Cirsium arvense*), spotted knapweed (*Centaurea maculosa*), Scotch thistle (*Onopordium acanthium*), and field bindweed (*Convolvulus arvense*). Though nearly eradicated, resource teams are quick to treat any presence of houndstongue (*Cynoglossum officinale*) and whitetop (*Cardaria draba*).

The Northern Rocky Mountains Exotic Plant Management Team summary lists 59 acres, but it is likely that a much greater area of the Reserve is affected by nonnatives. Nonnative invasive plants that have been introduced to or have invaded the Reserve include cheatgrass, common burdock, Russian olive, kochia, common mullein, and crested wheatgrass. Instead of the native perennial grass understory, these species and others now comprise the understory in the big sagebrush community.

Canada thistle is the most pervasive noxious weed in the Reserve: efforts are being made to control this species, though eradication is unlikely. Spotted knapweed is the most invasive noxious weed threatening City of Rocks for which eradication is likely. Other invasive weed threats include houndstongue, black henbane, and Scotch and musk thistles. A single invasive saltcedar tree was removed from City of Rocks, and the Reserve must continually monitor for the threat of saltcedar and other new invaders such as dyer's woad and leafy spurge. Cheatgrass has increased dramatically and continues to spread throughout the shrub-steppe habitat of the Great Basin in Idaho, disturbing and shortening normal fire regimes from 60–110 years to about every 3–5 years. Cheatgrass also establishes monocultures, thereby diminishing desirable vegetation and animals that are dependent on the native plants (Kurdila 1995; Reserve 2006a; Vitousek et al. 1996, 1997; Whisenant 1990).

FIRE

Fire History

Most forest, grass, and shrub ecosystems rely on natural fire to maintain their vegetative structure and species composition. Lightning-caused fire is part of the natural processes that have largely shaped the vegetation at City of Rocks today. American Indians used fire for cooking, to create defensible space across the landscape, and for manipulating vegetation for wildlife forage. Such forage enhancement provided beneficial habitat for wildlife that hunted for food. Fire was additionally employed to promote vegetation for human consumption. Currently, the frequency and rate at which certain vegetation burns have been influenced by both human- and lightning-ignited fire and the suppression of those wildfires. Other factors influencing fire frequency and fire intensity include plant community types, changes in topography, varying fuel accumulations, location of ignitions, and the weather conditions at the time of the ignition, especially wind and precipitation. Fire season in the Reserve can occur as early

as May and may persist through October. The introduction of invasive annual grasses, particularly cheatgrass, presents a substantial challenge to the fire management strategy in the Reserve. Fire facilitates cheatgrass invasion, and this in turn provides more fine fuels to allow fires to grow larger and spread much faster than in environments with less fine fuel – a positive feedback phenomenon known as “the fire-cheatgrass cycle” that has degraded much of the Snake River Plain. Recent monitoring surveys conducted by the National Park Service have documented that recently burned areas have much higher levels of cheatgrass infestation than areas that have not recently burned (Stucki and Rodhouse 2012).

Fire suppression and the reduction in the use of fire by indigenous peoples have allowed the increase in spatial distribution of pinyon-juniper stands in the Reserve, which resulted in increased live and dead fuels. When wildfire occurs, these fuels increase fire intensity and the rate that fire spreads within the Reserve leading to large, costly, and dangerous wildfires that have the potential to damage Reserve resources and impact adjacent communities. Recent fires have significantly reduced the acreage of this plant community, but many areas with historically limited densities of pinyon-juniper are now covered with this vegetation type. The absence of natural wildfires in part has led to the extensive areas of pinyon-juniper existing outside of their natural areas. This is a highly altered condition that is difficult to maintain given the natural fire regime. Historically under a natural fire regime, pinyon-juniper stands were located in areas infrequently visited by fire. Fire suppression has also allowed a significant downed woody component to build up in stands of Douglas fir. Dead and diseased firs continue to add to this fuel component.

Grazing and fire suppression have reduced the beneficial impacts of wildfire, causing an increase in acreage of pinion/juniper stands and a decrease in the health and vigor of aspen communities in the Reserve. Isolated stands of Douglas fir have persisted without the presence of fire, and with increased live and dead fuels

loadings contributing to higher fire intensities, these species are very susceptible to stand replacing wildfires.

The fire regime for the pre-settlement pinyon-juniper woodland has a fire return interval of approximately 100 years in the old-growth stands and 50 years in the pinyon-juniper/sage grass stands. Areas with sage brush as the major vegetative component have a fire return interval of 15 to 25 years, and areas of predominantly grasses have a 5- to 10-year fire return interval.

The Reserve is bordered by lands managed by the U.S. Forest Service to the north, BLM lands to the east, south, and west, and privately owned lands elsewhere. The Bureau of Land Management has fire suppression responsibilities on privately owned lands, and additional privately owned lands are located within the boundaries of the Reserve.

Fire Management Plan

Current fire management activities at the Reserve include the suppression of all wildland fires. All unplanned ignitions, both lightning-caused and human-caused, are suppressed, using the appropriate suppression response to protect sensitive park resources. The *City of Rocks National Reserve Fire Management Plan* and compliance document were completed in September 2005.

The Reserve does not have a fire management organization. It relies instead upon agreements with the Southern Idaho Interagency Fire Dispatch Center, the Bureau of Land Management, and other firefighting agencies using the “closest forces” approach for dispatch of initial attack resources to suppress fires within and adjacent to the Reserve. There is also an initial attack agreement with the Almo, Connor Creek, Elba Fire Protection District.

Potential Fire Behavior

Fuels present in the Reserve range from grass/forbs to brush and timber stands, all located on gentle to steep slopes. This combination results in varied fire behavior, ranging from cooler fires

under moderate weather conditions to extreme fire behavior during drought and/or strong wind conditions. The latter situation presents a particular problem for firefighter and public safety and increases the potential for damaging sensitive natural and cultural resources, especially during high-intensity fires initiated in light, flashy fuels at the lower elevations of the Reserve. It is in this area that visitors intermix with sensitive cultural and natural resources. This is also likely to be the area where wildfire has the highest probability to leave the Reserve, potentially impacting local communities and privately owned land.

Fire Management Plan Update

Following the completion of the general management plan, the Reserve’s fire management plan should be updated to ensure that GMP guidance and new scientific and sociologic information are included. The plan should be updated to include current Wildland Fire Policy language and concepts for community protection measures outlined in community wildfire protection plans. Recommendations from scoping for the updated fire management plan include:

- Where practical, the Reserve should develop fuels treatment plans that when implemented will reduce the damaging effects of wildland fire on the Reserve’s natural and cultural resources, protect visitors, and reduce the impacts of wildfire on adjacent communities and private inholdings.
- Collaborate with bordering agencies and private landowners when considering any fuels treatment planning effort.
- Examine the uses of prescribed fire to meet visitor protection and desirable long-term vegetation goals, especially in the pinyon/juniper/sage/grass vegetation types.
- Examine the feasibility of using naturally occurring wildfire as a benefit to fire-dependent plant communities and to maintain the natural appearance of the Reserve’s landscapes.

WILDLIFE

The Reserve occurs at a biogeographic crossroads and protects a rich diversity of wildlife, especially mammals and birds. Since the Reserve's designation in 1988, several unpublished and a few published inventories have been conducted. The various inventories and the current knowledge of the wildlife resources are discussed under the following subheadings: "Mammals," "Birds," "Reptiles and Amphibians," "Fish," and "Invertebrates." Park staff annually conduct inventories of species observed, and rare sightings are thoroughly documented and submitted to the UCBN I&M program. Certain wildlife species within Idaho are only found in and around the Reserve's pinyon woodlands and granite monoliths. These are discussed in greater detail below.

Mammals

The Reserve's mammal checklist includes 52 species, although not all have been verified in the field. The checklist is partially based on the 2003 mammal inventory report, conducted by the University of Idaho Department of Fish and Wildlife Resources (Rodhouse et al. 2009). The report states that 47 species are expected or confirmed within the Reserve; however, the NPSpecies database lists 64 species probable or confirmed. These conflicting statistics demonstrate that more work is needed. Additional confirmation of present species is based on the "Small Species Status Survey in the Pinyon-Juniper Woodlands of City of Rocks National Reserve and Castle Rocks State Park, Idaho" (Vincent et al. 2007).

The following mammal species in or near the Reserve are listed on the Idaho Department of Fish and Game's website as Idaho Species of Great Conservation Need (ranking and note included):

- Spotted bat; S3 (confirmed in the Reserve in 2003; distribution is poorly known in Idaho)
- Pygmy rabbit; S2 (confirmed within 10 miles of the Reserve, and once thought to inhabit the area)

- Cliff chipmunk; S1 (a "peripheral species" in Idaho, but common in the Reserve)
- Great Basin ground squirrel; S2 (a permanent but uncommon resident of the Reserve)

Note: S1 = critically imperiled in Idaho; S2 = imperiled; S3 = vulnerable

The 2003 mammal inventory was helpful in confirming a number of small rodents. The deer mouse and Great Basin pocket mouse were the two most abundant mammals represented in trapping results. Pinyon mouse was reconfirmed in the Reserve for the first time since an unconfirmed report was made in 1967. The Reserve is at the northern limit of the range for this unique species, and the voucher specimen collected in 2003 may represent a significant range extension in Idaho.

In March of 2003, a ringtail cat carcass was found in nearby Castle Rocks by Reserve staff. This was the first record of the species in Idaho and also represented a significant northward range extension. Ringtail tracks in snow were reported in subsequent years, but no evidence of a viable population has been documented.

Larger mammals of interest include occasional elk, moose, and bighorn sheep. Most common are mule deer, coyote, bobcat, black-tail jackrabbit, mountain cottontail, desert woodrat, and long-tailed weasel. Mule deer are so common in Almo in the winter that upwards of 75 individuals can be seen most winter days between Durfee Hot Spring and Big Cove Road, a deer migration corridor that requires caution for road travelers. Much of the City of Rocks and Almo Valley provide crucial habitat for wintering mule deer. In the summer, least chipmunks and golden-mantled ground squirrels are frequent guests to campsites.

Pronghorn antelope and bison were probably common more than a century ago. Now, only the rare sighting of a pronghorn in the upper Raft River Valley is recorded. Bighorn sheep had been extirpated from the City of Rocks, although an occasional individual is seen passing through the Reserve from the reintroduced populations in the Jim Sage Mountains, South Hills, and on the south slope of Cache Peak.

The area is part of a mountain lion corridor. A long-term mountain lion study was conducted in the area and several individual cats were tracked through the Reserve at various times (Laundre et al. 1991). The study noted that four adults and five kittens were known to use the Reserve during the winter of 1989–90. Controlled mountain lion hunts are held in Big Game Hunting Unit 55 each year, which includes the Reserve (IDFG 2012b). Human–lion encounters in the Reserve are extremely rare, but one hunter reported being cornered by a lion in nearby Castle Rocks State Park in 2005.

Birds

The Reserve and Castle Rocks State Park are popular destinations for birders in search of Idaho rarities such as pinyon jay, juniper titmouse, Virginia warbler, and greater sagegrouse. The park’s official 2010 checklist contains 142 species and is based on more than 11 years of observation data by Park Superintendent Wallace Keck (Keck 2010). Most research projects within the Reserve that focus on natural resources have included a bird observation list in the field notes, and birders frequently report their sightings at the visitor center. There is high confidence in the known inventory of bird species within the Reserve.

The Reserve’s high cliffs and pinnacles are perfect places for nesting raptors. Park staff conduct annual spring surveys to determine if active nesting is taking place, and if so, nearby climbing routes are temporarily closed. Nesting raptor species include red-tailed hawk, Swainson’s hawk, sharp-shinned hawk, Cooper’s hawk, northern goshawk, golden eagle, American kestrel, and prairie falcon. Other bird species dependent on the geological features for nesting include violet-green swallow, cliff swallow, rock wren, and canyon wren.

Additional surveys are especially needed to accurately assess the presence and available habitat of the following bird species, listed by the Idaho Department of Fish and Game’s website as Idaho Species of Great Conservation Need (ranking and note included):

- Greater sage grouse, S2 (confirmed leks and nests outside the Reserve at Castle Rocks State Park)
- American white pelican, S1B (seen only in migration overhead)
- Black-crowned night-heron, S2B (confirmed for the first time in 2009 in the Almo Valley)
- Bald eagle, S4N (seen only in migration through Almo Valley)
- Swainson’s hawk, S3B (fairly common in and around the Reserve in summer)
- Ferruginous hawk, S3B (seen rarely in the Almo Valley)
- Peregrine falcon, S2B (documented in the Reserve prior to 1995, but not seen since)
- Sandhill crane, S3B (uncommon breeding bird of Castle Rocks and Almo Valley, one nest record in Reserve)
- Long-billed curlew, S2B (uncommon breeding bird in Almo Valley and east of Emigrant Canyon)
- Wilson’s phalarope, S3B (few records in Almo Valley)
- Burrowing owl, S2B (unconfirmed in the Reserve, but confirmed in the Almo Valley)
- Short-eared owl, S4 (unconfirmed in the Reserve, but confirmed in the Almo Valley)
- Lewis’ woodpecker, S3B (observed and photographed in the Almo Valley, May 24, 2008)
- Pinyon Jay, S1 (fairly common in hills between Almo Valley and the eastern edges of the Reserve)
- Juniper titmouse, S2 (fairly common in the Reserve and hills east of Castle Rocks)
- Virginia’s warbler, S1B (fairly common in high woodlands of the Reserve and Castle Rocks)
- Brewer’s sparrow, SB3 (fairly common in open areas of Reserve and Almo Valley)
- South Hills crossbill, S1 (subspecies of red crossbill)

Note: S1 = critically imperiled in Idaho; S2 = imperiled; S3 = vulnerable; S4 = apparently secure; B = breeding; N = non-breeding.

The U.S. Fish and Wildlife Service maintains a list of species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act. The most current list was published in 2008, and is divided into regions. The Reserve falls within Region 9 (Great Basin). The list on page 25 of that report includes 28 bird species, of which 15 are known to occur within the Reserve, surrounding public lands, Almo Valley and Upper Raft River Valley. These species are listed in table 31, and noted in that status column as “BCC.”

Nonnative species in the Reserve and Almo Valley include the European starling, house sparrow, rock pigeon, and Eurasian collared-dove. Of these species, the rock pigeon is the most numerous within the Reserve, while the remaining species are more common in the Almo Valley around barns and agricultural fields. The Eurasian collared-dove was first reported in the Almo Valley in 2009 and is increasing in number.

Reptiles and Amphibians

Over a period of 16 days in 2001, Jeremy Shave and Charles Peterson of Idaho State University conducted an extensive search in the Reserve for reptile and amphibian species (Shave and Peterson 2009). Their report determines that 14 species of reptiles and amphibians are potentially present within the study area, based on current range maps and historical observations. They observed seven species within the study area, none of which is considered a sensitive species or a species of special concern. Only one amphibian, the boreal chorus frog, was detected.

Reptiles most likely to be encountered by visitors are the sagebrush lizard, terrestrial garter snake, and Great Basin gopher snake. On rare occasions, park staff respond to visitor encounters with a Great Basin rattlesnake. To date no one has reported being bitten by one within the Reserve. Another sighting of interest occurred on May 19, 2009, when a

desert horned lizard was encountered and photographed in Emigrant Canyon. The species was last documented in Cassia County, near Malta, in 1955–57.

Fish

No fish species have been documented within the Reserve. A few attempts to verify the presence of fish species within Circle Creek have been conducted. Electro-shocking techniques were used in Circle Creek Impoundment in September 2005 without success. Circle Creek and Graham Creek are the largest streams within the Reserve but remain disconnected most of the year from Almo Creek and Raft River, where species have been confirmed. Yellowstone cutthroat trout have been verified within the upper reaches of Almo Creek, about two miles north of the Reserve. The nearest confirmed location to the Reserve of a fish species is Junction Creek, a headwater tributary of the Raft River, located one mile from the southwest entrance of the Reserve (IDFG 2007 and Meyer et al. 2006).

Invertebrates

One of the greatest invertebrate discoveries within the Reserve was the confirmation of a healthy reproducing population of fairy shrimp, *Branchinecta constricta*. This species was formerly known to exist only in south-central Wyoming, on the east side of the Continental Divide. The June 2008 discovery and verified identification represented a substantial range extension for the species. Larger vernal pools may prove to hold other fairy shrimp species and could represent an important habitat for a relatively selective species.

In July 2007, volunteer Miriam Austin led staff in conducting an inventory of butterfly species at the Reserve and Castle Rocks State Park. Nearly 360 individuals were encountered, representing 28 species. The findings were published in the North American Butterfly Association’s Butterfly Count 2007 Report. This was the first inventory of butterflies for this area (North American Butterfly Association 2007).

Aquatic invertebrates were collected by NPS staff as part of a larger assessment for an integrated water quality annual report in 2009. The survey in Circle Creek yielded 46 different species; the majority were identified to the genus level (Starkey 2010). Macroinvertebrates were also collected in 2012.

Another invertebrate of note is *Ips confusus*, the pinyon pine bark beetle. Because the pinyon forest community extends north into the Reserve, so too do its pests. Pinyon beetle damage is present in many areas of the Reserve, but particularly on Smoky Mountain and the surrounding small hills.

The colder temperatures and greater moisture of southern Idaho may prevent the beetle from gaining a foothold and devastating the Reserve's pine woodlands, as it has done in the southwestern United States.

Special Status Wildlife Species

Table 31 lists wildlife species that are considered special status species by state or federal agencies providing their designated status and their habitat occurrence (USFWS 2012a) (see definitions at end of the table).

TABLE 31. SPECIAL STATUS WILDLIFE SPECIES*		
Wildlife Species	Status	Habitat Occurrence
Spotted bat <i>Euderma maculatum</i>	S3	Cracks and crevices of cliffs, but not documented or known
Pygmy rabbit <i>Brachylagus idahoensis</i>	S2, FE	Tall, dense sagebrush, but not confirmed within Reserve
Cliff chipmunk <i>Tamias dorsalis</i>	S1	Old-growth pinyon-juniper sites near outcrops
Great Basin ground squirrel <i>Spermophilus mollis</i>	S2	Southern portion of the Reserve in grasslands and/or low sagebrush
Greater sage grouse <i>Centrocercus urophasianus</i>	S2, FC	Sagebrush steppe, documented leks and nests in nearby Castle Rocks State Park
American white pelican <i>Pelecanus erythrorhynchos</i>	S1B	Seen only in flight, no suitable habitat within the Reserve
Black-crowned night-heron <i>Nycticorax nycticorax</i>	S2B	Lower Almo Creek and Raft River (Almo Valley); not confirmed in park
Bald eagle <i>Haliaeetus leucocephalus</i>	S4N	Observed in Almo Valley only during migration
Swainson's hawk <i>Buteo swainsoni</i>	S3B	Rocky Cliffs, often seen in the low hills northwest of Almo Valley
Ferruginous hawk <i>Buteo regalis</i>	S3B	Rarely observed in the Reserve or Almo Valley
Merlin <i>Falco columbarius</i>	S2N	Open landscapes; rarely observed in the Reserve
Peregrine falcon <i>Falco peregrinus</i>	S2B	High Rocky cliffs; not confirmed in Reserve for 15+ years
Sandhill crane <i>Grus canadensis</i>	S3B	Open fields in Almo Valley, riparian edges
Long-billed curlew <i>Numenius americanus</i>	S2B	Fields, marshes, and grasslands primarily outside the Reserve
Wilson's phalarope <i>Phalaropus tricolor</i>	S3B	Fields, marshes, and grasslands primarily outside the Reserve

TABLE 31. SPECIAL STATUS WILDLIFE SPECIES*

Wildlife Species	Status	Habitat Occurrence
Burrowing owl <i>Athene cunicularia</i>	S2B	Raft River Valley grasslands; not confirmed in Reserve
Short-eared owl <i>Asio flammeus</i>	S4	Grasslands; not confirmed in the Reserve
Lewis' woodpecker <i>Melanerpes lewis</i>	S3B	Open woodlands; few records in the area
Pinyon jay <i>Gymnorhinus cyanocephalus</i>	S1	Pinyon-juniper woodlands, especially in low hills outside the Reserve
Juniper titmouse <i>Baeolophus griseus</i>	S2	Pinyon-juniper woodlands
Virginia's warbler <i>Vermivora virginiae</i>	S1B	Dry pinyon-juniper woodlands
Brewer's sparrow <i>Spizella breweri</i>	SB3	Sagebrush steppe
South Hills crossbill <i>Loxia sinesciuris</i>	S1	Fir-spruce-lodge pole forests in high elevations

*** Special Status Designations****Federal**

FE = Federally Endangered: Listed by the U.S. Fish and Wildlife Service as a species that is in danger of extinction throughout all or a significant portion of its range.

FT = Federally Threatened: Listed by the U.S. Fish and Wildlife Service as a species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

FP = Federal Proposed: Species for which the U.S. Fish and Wildlife Service has proposed in the Federal Register listing as threatened or endangered.

FC = Federal Candidate: Species for which the U.S. Fish and Wildlife Service has sufficient information to propose for listing as threatened or endangered.

FSC = Federal Species of Concern: Species whose conservation standing is of concern to the U.S. Fish and Wildlife Service, but for which status information is still needed.

State

S1 = Idaho State Critically Imperiled: Listed by the Idaho Conservation Data Center as at high risk because of extreme rarity (often 5 or fewer occurrences), rapidly declining numbers, or other factors that make it particularly vulnerable to rangewide extinction or extirpation.

S2 = Idaho State Imperiled: Listed by Idaho Conservation Data Center as at risk because of restricted range, few populations (often 20 or fewer), rapidly declining numbers, or other factors that make it vulnerable to rangewide extinction or extirpation.

S3 = Idaho State Vulnerable: Listed by Idaho Conservation Data Center as at moderate risk because of restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors that make it vulnerable to rangewide extinction or extirpation.

S4 = Idaho State Apparently Secure: Listed by Idaho Conservation Data Center as Uncommon but not rare; some cause for long-term concern due to declines or other factors.

B = Idaho State Breeding: Listed by Idaho Conservation Data Center because the Conservation status refers to the breeding population of the species.

N = Idaho State Nonbreeding: Listed by Idaho Conservation Data Center because the Conservation status refers to the nonbreeding population of the species.

Wildlife and Natural Soundscape

The preservation of the Reserve's acoustical environment is vitally important to overall ecosystem health. The peer reviewed literature widely documents the critical role that sound plays in intra-species communication, courtship and mating, predation and predator avoidance, and effective use of habitat. Additionally, similar studies have shown that wildlife can be adversely affected by sounds and sound characteristics that intrude on their habitats. While the severity of the impacts varies depending on the species being studied and other conditions, research strongly supports the fact that wildlife can suffer adverse behavioral and physiological changes from intrusive sounds (noise) and other human disturbances. Documented responses of wildlife to noise include increased heart rate, startle responses, flight, disruption of behavior, and separation of mothers and young (Selye 1956; Clough 1982; NPS 1995; USDA 1992; Anderssen, Nicolaisen, and Gabrielsen 1993).

When noise elevates ambient sound levels, signals that might otherwise have been detected and recognized are missed. The noise is said to mask these signals. Masking degrades an animal's auditory awareness of its environment and fundamentally alters interactions between predators and prey. There are many animal species that rely almost exclusively on sounds to locate their prey (for example owls and gleaning bats). Masking also affects acoustical communication. Animals have been shown to alter their calling behavior and shift their vocalizations in response to noise (Brumm and Slabbekoorn 2005; Patricelli and Blickley 2006; Slabbekoorn and Ripmeester 2008; Warren et al. 2006). These shifts have been documented in a variety of signal types: begging calls of bird chicks (Leonard and Horn 2008), alarm signals in ground squirrels (Rabin et al. 2006), echolocation cries of bats (Gilman and McCracken 2007) and sexual communication signals in birds and anurans (Brumm and Slabbekoorn 2005; Patricelli and Blickley 2006; Warren et al. 2006; Slabbekoorn and Ripmeester 2008; Parris, Velik-Lord, and North 2009). Vocal adjustment probably comes at a cost both

to energy balance and information transfer; however, no study has addressed receivers. Some species are unable to adjust the structure of their sounds to cope with noise even within the same group of organisms (Lengagne 2008). These differences in vocal adaptability could partially explain why some species do well in loud environments and others do poorly (Patricelli and Blickley 2006; Slabbekoorn and Ripmeester 2008).

Some large herbivores have been observed to habituate to acoustic stimuli (Krausman et al. 2004; Weisenberger et al. 1996). Habituation is a decreased responsiveness to a stimulus upon repeated exposure. There are many reasons why reports of habituation to noise should be interpreted with caution. A reduction in one form of response may represent a shift to another unobserved mode of response rather than development of complete tolerance. Observation of a more tolerant population may be the result of sensitive individuals leaving the area (Bejder et al. 2009). Animals that remain may not have other viable options. Lastly, a completely habituated animal has learned to ignore a class of stimuli, some of which may be important biological cues.

RESEARCH NATURAL AREA

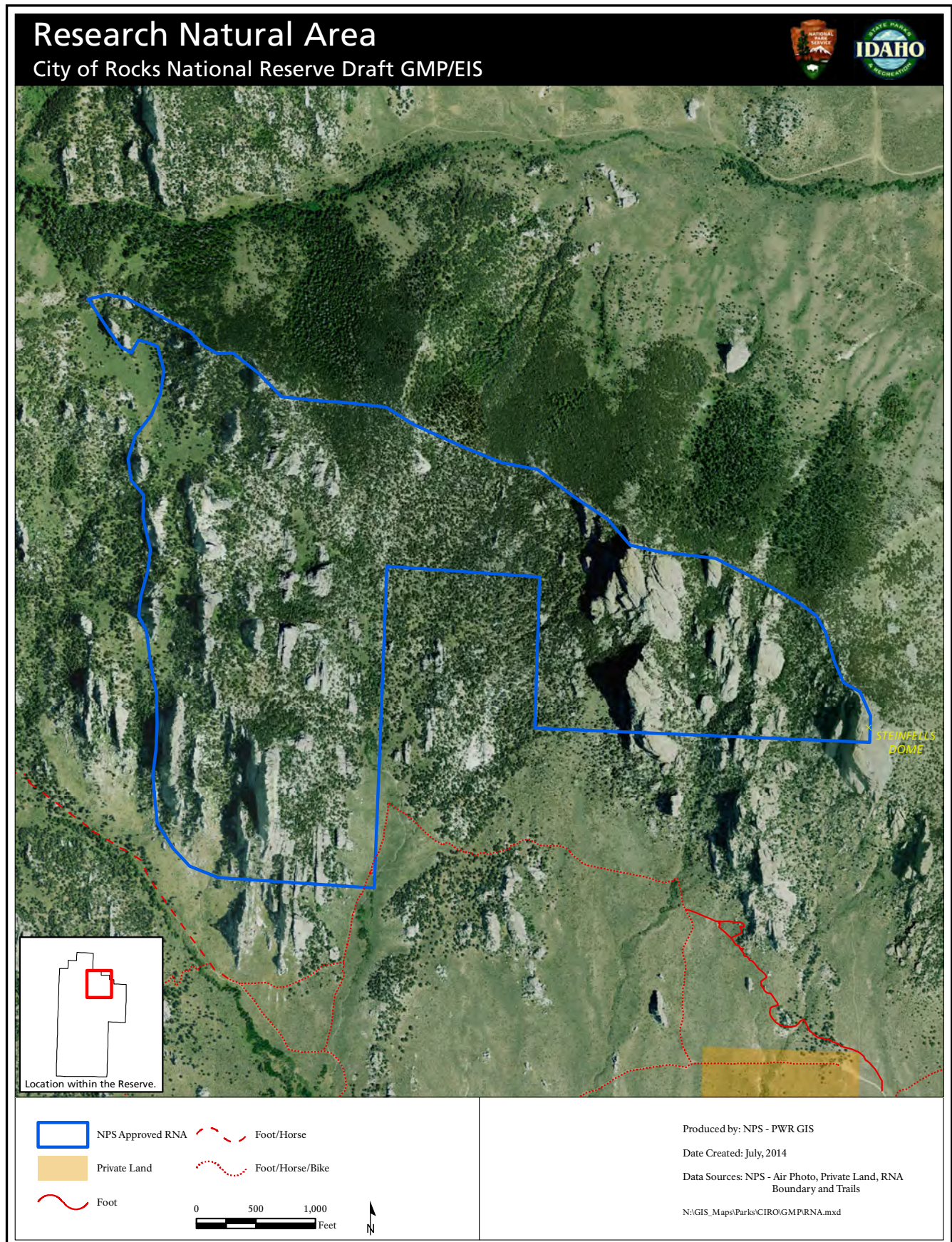
The City of Rocks Research Natural Area consists of 312 acres within the Reserve, located in the southern part of the Albion Mountains and in the northern end of the Great Basin ("Figure 19. Research Natural Area"). It was designated as a Research Natural Area for its outstanding natural features, natural processes, natural diversity, and ecological value. It contains unique geologic formations and the northern limit of the pinyon-juniper forest type in North America. At the time of the RNA creation it was the only research natural area with stands of singleleaf pinyon. The geology is composed mainly of the Green Creek Complex, a 2.5 billion-year-old granitic gneiss basement rock with the Almo Pluton granitic-type rock intruding through the older complex, an event that occurred about 25 to 30 million years ago (Pogue 2008). The Research Natural Area is

located in the northern portion of the Circle Creek Basin. Elevation in the Research Natural Area ranges from 6,200 feet at the southern boundary to 7,688 feet on the ridge of the northern border.

History of the Research Natural Area

In the late 1970s, prior to creation of the Reserve, the Idaho Natural Areas Coordination Committee identified a 640-acre area within BLM- and USFS-managed lands as a potential research natural area. Grazing was a major factor in determining the size and specific area of the Research Natural Area: the committee sought to minimize conflicts with historical grazing patterns. In 1983, the boundaries of the proposed Sawtooth National Forest Research Natural Area were agreed upon at 45 acres and the Bureau of Land Management established an adjacent 240-acre area. In 1985, a 312-acre Research Natural Area was defined, and management for the 312-acre Research Natural Area was given to the Reserve when it was established in 1988. The Reserve's 1996 comprehensive management plan officially mandated that the Research Natural Area be managed under NPS Natural Resource Management Reference Manual 77.

FIGURE 19. RESEARCH NATURAL AREA



Management of the Research Natural Area

The Research Natural Area in its current management state meets the criteria for which it was established. The National Park Service has six major objectives for research natural areas (NPS 2004a):

- Preserve a wide range of undisturbed, representative areas that typify important forest, shrub land, grassland, alpine, wetland, and similar natural situations that have special or unique characteristics, or provide outstanding examples of geological, biological, or ecological processes of scientific interest and importance.
- Preserve and maintain genetic diversity.
- Protect against deleterious environmental disturbance.
- Provide student and professional education.
- Serve as baseline areas for measuring long-term ecological changes.
- Serve as control areas for comparing results from manipulative research conducted elsewhere.

Research Natural Area Vegetation

Two studies have been published on the City of Rocks Research Natural Area since its creation. These studies were conducted by the BLM Burley District, Idaho, in October 1983 and Northwest Management, Inc., in 2010 (BLM 1983; Bell and Barton 2010). Vegetation was a focus of these studies, both of which determined that the area received low levels of human impact. Native vegetation and old-growth tree stands were in good condition.

The 2010 study found no threatened, endangered, or sensitive vegetation within the Research Natural Area. A rapid assessment method co-developed by the Natural Resources Conservation Service, Agricultural Research Service, Bureau of Land Management, and the U.S. Geological Survey (Pellant et al. 2005) was used to evaluate the health of two sites in the Research Natural Area. The methodology

is based on the potential of land to produce distinctive kinds, amounts, and proportions of vegetation and evaluates three major landscape processes; soil stability, hydrologic function, and biologic integrity. The two rapid-assessment sites had minor amounts of cheatgrass and very few nonnative forbs. The sites were in very good condition and functioning properly in the three major landscape processes included in the evaluation. From the field survey, 211 plant species were identified out of the 533 species listed for City of Rocks. There was no evidence of any listed threatened, endangered, or sensitive plant species. Singleleaf pinyon / Utah juniper plant associations accounted for 36.7% of the Research Natural Area. Bare ground / rocks areas accounted for 25.1% and were spatially intermixed with the vegetation. The ages of four singleleaf pinyon and one limber pine in the Research Natural Area were determined and varied from 310 to 410 years of age (Bell and Barton 2010). The singleleaf pinyon community in the Research Natural Area met the definition for an old-growth stand.

Nonnative plant life within the Research Natural Area has a slight impact on the native vegetation. The condition of the vegetation is generally good with nonnative plants rarely present. Only 14 of the 211 plants found in the Research Natural Area are listed as nonnative. The most obvious and abundant nonnative species are the annual grasses, Japanese brome and cheatgrass, as well as the perennial grass and bulbous bluegrass. Tumble mustard is widely scattered throughout the area but not abundant. Other nonnative annual forbs are commonly found but rarely abundant (Bell and Barton 2010).

The high quality of the native vegetation and old-growth tree stands found in the Research Natural Area is evidence that the conservation management practices employed to date have been appropriate for this area.

Wildlife within the Research

Natural Area

The Research Natural Area is an excellent place to view nature in an untouched state. Wildlife such as mule deer, black-tail jackrabbit, mountain cotton tail, mountain lion, bobcat, lynx, badger, porcupine, moose, elk, coyote, bushytail woodrat, and various small rodents can be found. The Research Natural Area is also home to a wide variety of birds, such as the golden eagle, turkey vulture, red-tailed hawk, northern harrier, American kestrel, rock dove, mourning dove, common nighthawk, northern flicker, black-billed magpie, western kingbird, common raven, mountain chickadee, rock wren, house wren, violet-green swallow, cliff swallow, blue-gray gnatcatcher, American robin, chipping sparrow, and Brewer's blackbird.

Special status species such as the cliff chipmunk, greater sage grouse, Swainson's hawk, peregrine falcon, pinyon jay, juniper titmouse, Virginia's warbler, and Brewer's sparrow may also be found in the Research Natural Area. No evidence, however, was found of any listed or candidate wildlife species in the Research Natural Area (Bell and Barton 2010).

Research within the Research Natural Area

The Reserve's Research Natural Area is an outstanding area for research on geological features, native vegetation, and animal life. The Research Natural Area has experienced few human impacts, resulting in a singular opportunity to see nature at its finest. Researchers participating in the two RNA studies noted:

"No roads exist within the area, and no roads are being planned" (BLM 1983).

"The majority of the City of Rocks RNA has been undisturbed by human-related impacts. The only man-made structure within the RNA is an old, unmaintained fence running north-south along the former boundary between USFS and BLM lands. The RNA is considered separated from the adjacent active grazing allotments by natural barriers. Cattle grazing is occurring

in a few areas along the western and southern boundaries, but did not significantly affect the landscape ratings for biotic, soil, or hydrologic processes" (Bell and Barton 2010).

BIOGEOGRAPHIC CROSSROADS

Biogeographic crossroads are zones of ecological transition in which many species' ranges overlap, generating high species diversity. There is increasing recognition that these areas may also support unique sources of biological diversity and that these crossroads justify increased conservation attention and prioritization. Conservation at these biogeographic crossroads is seen as a strategy to protect fundamental ecological processes such as the formation of new species and adaptation to climate change. Based on a series of recent reports and publications, research suggests that City of Rocks National Reserve meets the description of a biogeographic crossroads and warrants increased recognition of its conservation value within the U.S. network of parks and protected areas (Rodhouse et al. 2010; Powell et al. [in review]).

Awareness of biodiversity at City of Rocks was noted as early as 1973 in a NPS document entitled "Suitability/Feasibility Study for the Proposed City of Rocks National Monument." City of Rocks lies close to a divide that separates the Pacific drainage to the north from the internal Great Basin drainage to the south. The divide forms a barrier to wildlife and plant migration and thus provides for a variety of habitats. For example, the pinyon pine located at City of Rocks is at this species' northernmost range of tolerance (NPS 1973). More recently, research on the small mammal community in the Reserve has identified that the old-growth pinyon-juniper woodlands are home to several Idaho species of concern, including the cliff chipmunk and pinyon mouse (Rodhouse et al. 2010). These species are at their northern range limits in vicinity of the Reserve is association with the northern range limit of the singleleaf pinyon pine and Utah juniper that creates the woodland habitat.

Species at the Crossroads

While only three species within the Reserve are considered plants of special concern, a number of other species are worthy of note due to their location at the edge of their geographic distribution. The Reserve is located at the northern end of the Basin-and-Range province, the southern edge of the Snake River Plain (Upper Columbia Basin), and slightly west of the Northern Rocky Mountains, establishing it as a biogeographic crossroads, or the extreme distribution edge for some species. Plants at the edge of their ranges include Utah juniper, *Juniperus osteosperma* (northern edge); pinyon pine, *Pinus monophylla* (northern edge); lodgepole pine, *Pinus contorta* (southwestern edge); limber pine, *Pinus flexilis* (one of the isolated pockets of the western range); and subalpine fir, *Abies lasiocarpa* (southwestern edge).

CULTURAL RESOURCES

City of Rocks National Reserve is a national historic landmark district significant for its association with the largest overland emigrant migration in American history. Overland trails through the Reserve were traveled by mountain men, emigrant pioneers, Forty-niners, freighters, military expeditions, and stagecoach companies from 1829 through the early 20th century. Situated along the eastern approach to the Humboldt River, City of Rocks was one of the great scenic and historic landmarks along the California Trail. Thousands of travelers passed through the area on their way to or from California and western Nevada, and some traveled this way on the southern route of the Oregon Trail, known as the Applegate Trail. Many emigrants wrote about the area in their journals and described the “strange and romantic” granite formations they saw here.

As early as 1941, the National Park Service identified the “Silent City of Rocks” as a historically significant site along the California Trail. On February 27, 1957, the Idaho state legislature, also aware of the scenic and historical importance of the area, set aside

640 acres for public use as a state park. Based on the significance of the California Trail and its contribution to the broad pattern of American history, 22 square miles (14,080 acres), including much of the future City of Rocks National Reserve, was listed in the National Register of Historic Places on October 24, 1963. The following year, on July 19, the Secretary of the Interior designated City of Rocks a national historic landmark in recognition of its exceptional value for interpreting the heritage of the United States. The City of Rocks National Historic Landmark is categorized as significant under Theme X, “Westward Expansion of the British Colonies and the United States, 1763–1898,” Subtheme D, “Western Trails and Travelers,” Facet 4, “California Trails and Settlement of California.” The landmark boundary was revised on August 6, 1987, to encompass 12,480 acres.

In addition to the features associated with the national historic landmark, many other features and remnants in the Reserve reflect both regional patterns of settlement and the homestead era, which occurred in southern Idaho between 1888 and 1929. Other themes important to the development of the area—such as fur trade and mining—while part of the Reserve’s history, did not significantly alter the character of the landscape or leave notable resources.

Cultural resources documented in the Reserve include American Indian associations and uses, archeological resources, and cultural landscape resources including structures, historic overland trail corridors, transportation features, and remnants of settlement, ranching, and agricultural operations.

National historic landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, these are fewer than 2,500 historic places in the entire country that bear this national distinction, and 10 of these properties—including City of Rocks—are in Idaho.

To qualify as a national historic landmark the significance and physical character of the property must be evaluated to determine if it meets several thresholds. It must be associated with a historical theme important to the nation and must meet at least one of six criteria for significance. It must possess physical integrity, have defensible boundaries, and be reviewed by an advisory board and approved by the Secretary of the Interior.

Working with the community and the professionals in the Idaho State Historic Preservation Office and National Park Service, City of Rocks was designated a national historic landmark on July 19, 1964. It is nationally significant under the recognized historical theme of *Westward Expansion and Extension of the National Boundaries to the Pacific 1830-1898* (NHL Theme XV). The period of significance for the City of Rocks National Historic Landmark is 1843–1882 and the boundary for the landmark covers 12,480 acres containing the physical resources and reflecting the environmental setting associated with one of the largest overland migrations in American history (NPS 2012d).

AMERICAN INDIAN USE AND HABITATION

Portions excerpted from *Historic Resources Study: City of Rocks National Reserve, Southcentral Idaho* (HRA 1996):

Situated in the northern reaches of the Great Basin physiographic region, the area comprising City of Rocks has a long history of use and occupation by the Shoshone and Bannock peoples. Documentation indicates that Pocatello, a prominent leader of the Northern Shoshone, and his followers used the area for hunting, gathering, grazing horses, and seasonal habitation. In the higher elevations they collected pine nuts, a traditional food, from the pinyon pine forests.

The City of Rocks National Reserve occupies an area at the junction of two physiographic regions, the Great Basin and the Columbia

Plateau, at the northern margin of the Great Basin “culture area.” A culture area is generally defined by anthropologists as a geographical area within which native inhabitants share similar cultural traits.

The Shoshone and Bannock people who occupied the upper Snake River Valley at the time of European-American contact displayed a blend of cultural traits typically associated with Plains, Great Basin, and Plateau cultures (Murphy and Murphy 1986). The relationship of the Northern Shoshone and Bannock, observed by ethnographers during the first part of the 20th century, is described as follows:

“The Fort Hall, or upper Snake River, Shoshone and Bannock formed into large composite bands of shifting composition and leadership. The Shoshone speakers were always the majority, but the chieftaincy was sometimes held by a Bannock. Most of the Fort Hall people formed into a single group each fall to hunt buffalo east of Bozeman, Montana and returned to the Snake River bottomlands near Fort Hall for the winter. . . The large bands split into smaller units for spring salmon fishing below Shoshone Falls, and summer was spent digging camas roots in Camas Prairie and other favored places. Deer and elk were hunted in the mountains of southeastern Idaho and northern Utah.” Merle W. Wells.

Because of excellent grazing resources, pinyon pine nuts, rock chucks [yellow-bellied marmot], game animals, and vegetable roots, the upper Raft River and the City of Rocks area served as a “Shoshoni seasonal village center” and summer range for the Shoshone’s extensive horse herds (Wells 1990). Almo residents reported that as late as the 1970s,

“The Indians [from the Fort Hall Reservation] used to come every fall gathering pine nuts. They would gather the cones all day, then dig huge pits, fill them with wood and set it on fire. Then when the coals were right, they put the sticky cones in and covered them with dirt. By morning the cones would be popped open. The squaws picked the nuts out of the cones. They would sell them for .25 a pint. . . every year, ‘til the last few years, they come and traded back and forth with people for

hides and on the years that the pine nuts were good ... they come by car. Then they first come, they come in a buggy and team, wagon and team. And camp here, they'd have a camp right here, right above here for weeks at a time... They'd come here and buy deer hides... They trades us buckskin gloves for deer hides. See and then they make the gloves out of the deer hides." Samuel Mikesell.

Years after their consolidation on the government reserve at Fort Hall, the Bannock-Shoshone would return for "... ceremonial dances. Their camp grounds were near the Twin Sisters as there was a spring of cold running water close by" (*Times News* 1964). Non-Indian settlers also report an "Indian legend" centered at the City of Rocks, namely that "a bath in [Bathtub Rock] before sunrise will restore youth to the aged" (Lind n.d.). Evidence of the City of Rocks' traditional significance thus continued long after ranching enterprises had transformed the area (HRA 1996).

ARCHEOLOGICAL RESOURCES

Eighty-one archeological sites are documented in the Reserve. All of these sites have Archeological Survey of Idaho site forms and are on file with the Idaho State Historic Preservation Office.

Six technical reports have been completed for archeological surveys and testing projects. Five of the archeological surveys were carried out between 1990 and 1999. Of the 81 archeological sites in the Reserve, 59 have a prehistoric component, and of these, 26 sites have been determined potentially eligible for listing in the National Register of Historic Places (Chance and Chance 1990). Native American sites

recorded in the Reserve include rock shelters, hunting sites, bedrock trays, lithic scatters, metates (milling stone), hopper mortar bases, and other artifacts. While there has been minimal archeological testing and excavation focused on prehistoric sites within the Reserve, 6 rock shelters were investigated in 1992. Information from tested sites and recovered isolates suggests habitation of the City of Rocks area beginning in the early Holocene (10,000–11,000 years BP [before present]). This is supported by the recovery of a Folsom pre-form at Castle Rocks State Park (Guenther and Henrikson 2010). Due to a lack of human archeological survey, human occupation of the area is poorly understood through much of the Holocene. Data also point to a general decline in human habitation within the current boundaries of the Reserve beginning ca. 1400 AD (600 BP) (Chance and Chance 1993).

Thirty-six historic archeological sites are also documented. These include features associated with the California Trail, such as wagon ruts and emigrant writing on rock formations in Circle Creek Basin, the Kelton-Boise stage station site, remnant homestead sites, mining claims, as well as ranching and agricultural features (see the "Cultural Landscapes" section for more information).

Although very little of the Reserve has been surveyed for cultural resources, the sites that have been documented reveal a rich history of occupation within and in the vicinity of the Reserve. Given this information, there is a high probability that undiscovered prehistoric and historic archeological sites exist within the Reserve boundary.

TRADITIONAL CULTURAL PROPERTY

During the summer of 2010 the Shoshone-Bannock and Shoshone-Paiute tribes expressed an interest to the Bureau of Land Management, Burley Field Office, to designate an area encompassing City of Rocks National Reserve, Castle Rocks State Park, and parcels of BLM and USFS land as a traditional cultural property (TCP). Since then, BLM staff has assisted the tribes with the nomination process and gathering pertinent data to complete a national register nomination. NPS regional staff has joined with BLM staff in both the TCP nomination effort as well as in pursuing an archaeology district that recognizes both Criterion D1 as well as Criterion A.¹

A TCP designation and “Native American Landscapes” designation (NAL) follow a process outlined for listing in the national register (National Register Bulletin 38). However, a traditional cultural property and Native American landscape are not property types; instead they act to convey the significance of a place to a group of people that have differing perspectives concerning activities and treatment to an area.

The TCP process commonly begins when a group or tribe identifies an area that holds cultural significance to their community. These areas generally maintain significance because of historical ties to a place, play an important role in maintaining and continuing cultural practices,

1. Criteria for Evaluation

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A.** That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B.** That are associated with the lives of significant persons in or past; or
- C.** That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D.** That have yielded or may be likely to yield, information important in history or prehistory.

or embody features or places associated with a group’s origin, beliefs about the nature of the world, or are an aspect of ceremonial activities. The elements of a TCP nomination include a defined area, a description identifying the aspects of an area or landscape that are significant, and supporting information that ties the cultural importance to a site, feature, or landscape. The nomination commonly uses archeological evidence, ethno-historical documents, and oral history to bolster the nomination.

Once a nomination is drafted, it is reviewed by the state historic preservation office and land managing agencies within the TCP boundary. The nomination is then submitted to the Keeper of the Register for consideration for listing in the national register.

CULTURAL LANDSCAPES

Portions excerpted from the *Historic Resources Study: City of Rocks National Reserve, Southcentral Idaho* (HRA 1996):

The National Park Service Director’s Order 28 defines a cultural landscape as a geographic area—including both cultural and natural resources and the wildlife or domestic animals therein—associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values. The cultural landscape of the Reserve is structured by the natural landforms and systems that provided a framework for its historical use and development. The physical landscape, characterized by steep, north/south-oriented ridges and free-standing knobs is largely encircled by mountains. The high point at Graham Peak (elevation 8,829 feet) is at the north boundary of the Reserve. The west slope of Smoky Mountain (elevation 7,562 feet) dominates the east boundary, and the Cedar Hills are located adjacent to the southern boundary.

The Reserve contains three prominent gently sloping basins, each drained by a tributary of the Raft River (see “Hydrology” section). Beginning at the north end of the Reserve, the Circle Creek

Basin draws water from three tributaries: North, Center, and South creeks. This basin contains a large concentration of granitic outcrops and monoliths that inspired the name City of Rocks. Circle Creek Basin includes a reliable water source, which during the periods of historic use possessed ample vegetation and open space for grazing livestock. As a result, it was a favored campsite location for emigrants on the California Trail and was the location of the earliest homestead claims in the area.

The second basin, Twin Sisters Basin, is located slightly southwest of Circle Creek, separated by a wide, low ridge. This basin incorporates approximately 600 acres of gently sloping land and is drained by several intermittent water courses, which join to form a single channel that flows through Heath Canyon at the base of the south side of Smoky Mountain. The moderate slope of the land, coupled with comparatively deep loamy soil, proved attractive to dryland farmers after 1909. At one time, this basin contained four homesites and various irrigation improvements.

The third basin, Emigrant Basin, is a forked basin located south of the Twin Sisters ridge. The California Trail crosses over the ridge from Twin Sisters Basin to Emigrant Basin through Pinnacle Pass. The Kelton-Boise stage station is located at the confluence of the two forks.

There are three smaller basins on the west side of the Reserve that drain to the west. Taylor Spring Basin drains into Birch Creek, which flows north to the Snake River. Trail Creek Basin and an unnamed basin in the southwest portion of the Reserve drain west to Junction Creek, which then flows around the south end of the Albion Mountains into the Raft River. Emery and Trail Creek basins are high elevation basins that have long been used for summer range. The unnamed basin had a short period of use during the mid-1900s for dryland farming, but serves as summer range in more recent times.

Today the landscape of the Reserve retains nationally significant cultural resources related to overland emigrant migrations between 1843 and 1882 and also displays various features

associated with later periods of activity that characterize the current rural setting of the Reserve, including homesteading, dryland farming, mining, and ranching. The following provides a summary of cultural landscape resources associated with these historic events.

Landscape Setting and Viewsheds

Within City of Rocks National Reserve, the 19th-century overland trail is part of a larger cultural landscape that largely reflects the historic character that awed and inspired emigrants making their way westward. Significant components of the California Trail corridor include not only the trail remnants, encampment sites, register rocks, and geological landmarks, but also the landscape itself. Although some landscape features and patterns have changed over time, many of these 19th- and 20th-century improvements are relatively small in the larger environmental context. In this regard, the viewshed, or the extent of the views seen from the emigrant trails, is a significant cultural resource of the Reserve and the national historic landmark.

Historically native bunch grasses and fescues prevailed in the basins, and coniferous forest covered the uppermost reaches of the surrounding hills. During the period of active migrations and use of the trails, the routes would have been littered with cast-off equipment and goods, and the vegetation overgrazed by hungry oxen and mules. At any given time during the summer months, wagon parties were camped in Circle Creek Basin, where water and forage were plentiful.

Today City of Rocks is less trammled, but also less wild. A visitor's first impression is still one of enclosure. Vistas within the Reserve boundaries associated with the historic trail corridors are defined by a circle of massive rock formations that enclose open space, adding great variety to the scenery. The Circle Creek Basin, where many emigrants camped, is still an expansive valley with a flowing creek, ringed by towering rock formations and offering a sense of security and comfort to plains-weary travelers. Formations named and sketched by pioneers still stand as

guideposts along the trails and modern roads. The Twin Sisters formation, which appears on the southwest horizon beyond the inscription rocks, continues to provide a focal point and landmark for those traveling to Pinnacle Pass across the next open valley, sometimes called the Twin Sisters Basin. The area around Twin Sisters is a particularly important part of the trail viewshed because the massive landmark can be seen by people approaching from the east as well as from the north, and once marked the junction of the California Trail and Salt Lake Alternate. Emigrants passing here knew they were a few days' ride from Salt Lake City and were about to begin the most difficult and hazardous part of their journey to California.

For the purpose of analyzing impacts on the California Trail and Salt Lake Alternate, the trail viewshed is considered to be the area within the foreground (up to one-quarter mile on either side of the identified route) and the middle ground (one-quarter to three miles) that comprises the significant continuous view along the trail. The viewshed contracts and expands following the topographic edges of ridgelines that frame the scene.

The distant background is also an important part of the views that form the trail, but it is far enough in the distance that many land uses incompatible with the historic setting are generally not discernible from the trail.

Three important views and their viewsheds along the California Trail warrant special attention (see "Figure 20. Cultural Resources"). They are important because they are the views experienced by historical travelers trying to find their way along the trail. These landmark views include:

- The view south toward Twin Sisters from the California Trail corridor as the ground rises to meet the basin in front of the two spires
- The view northwest toward Twin Sisters along the Salt Lake Alternate Trail at the stage stop
- The expansive view southwest to Granite Pass, one-quarter mile outside the southwest boundary of the Reserve.

The first view is directed to the Twin Sisters. This view includes the intermediate crags and peaks along the Twin Sisters ridge in the foreground and the considerable intervening distance. Yet the view to Twin Sisters remains important because it reveals the trail route to Pinnacle Pass and the lowest saddle along the ridge.

The second significant view looks northwest to the Twin Sisters from the Kelton-Boise stage station site. From this vantage, the separation of the two spires is apparent. Their individual and distinctive forms and textures are vividly perceived. Their strength as a dominant focal point is more evident due to the shortened middle ground, which makes them appear close to the viewer.

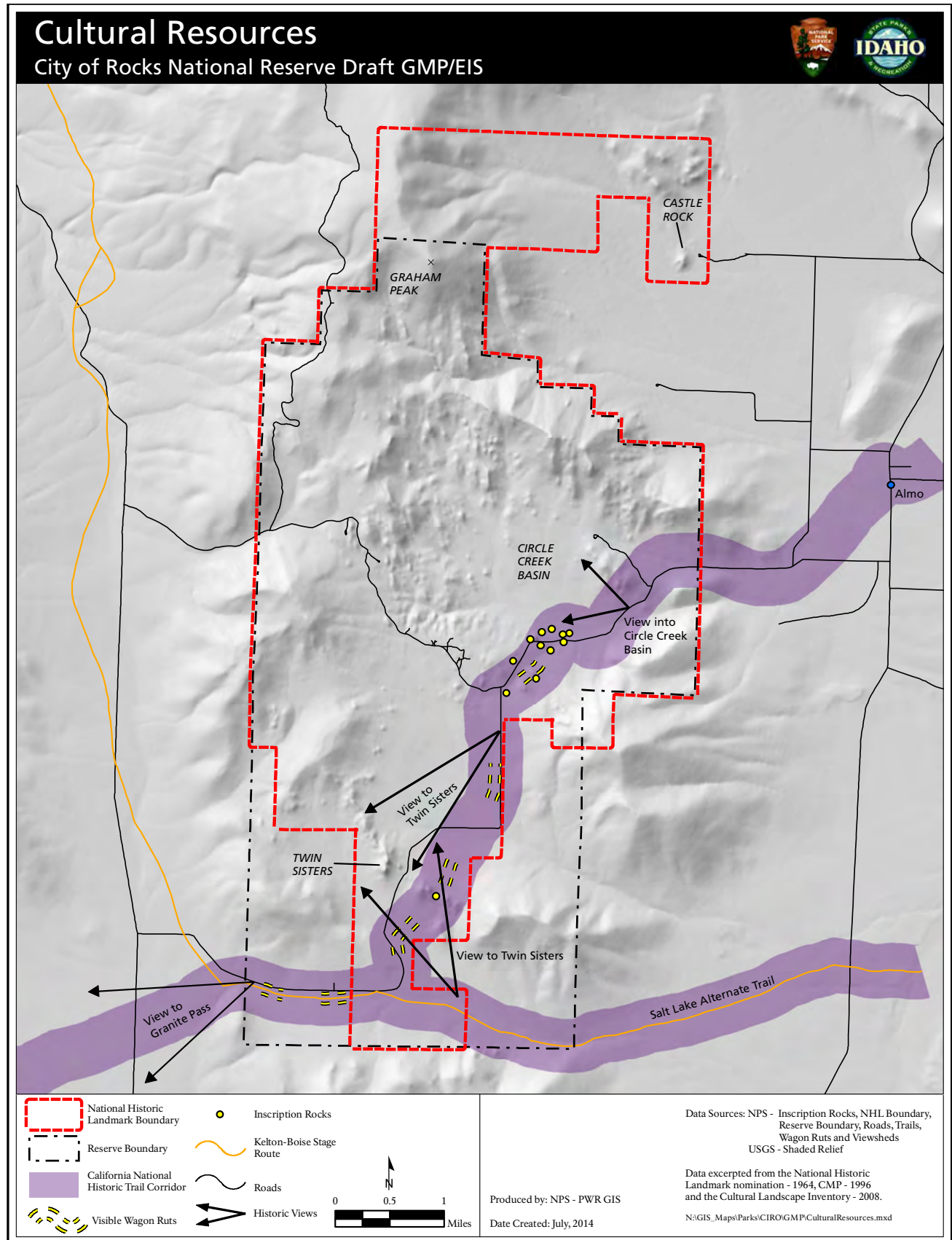
The third view extends beyond the boundary of the Reserve to Granite Pass: it is an extensive view with no foreground or containment. A symbol of westward expansion and passage, this view is another significant outlook from the Reserve.

National Historic Trails

The wagon trails through City of Rocks are part of the larger California National Historic Trail, which Congress authorized in 1992 (Public Law 102-328) (see the California National Historic Trail legislation in "Appendix A: Reserve Legislation").

The California National Historic Trail begins at several "jumping-off places" on the Missouri River between Independence, Missouri, and Omaha, Nebraska; crosses the interior of the United States; and ends at numerous destinations in northern California and Oregon. Emigrants traveling the trail often noted significant landmarks and milestones along the way, and City of Rocks, with its intriguing rock formations, was one of these.

FIGURE 20. CULTURAL RESOURCES



At today's City of Rocks National Reserve, nearly nine miles of California Trail remain (see "Figure 3, Existing Conditions"). The trail approaches the east boundary of the Reserve from the vicinity of Almo, Idaho. South of Almo the historic trail forks, and the north branch roughly follows the alignment of the current road into the Reserve while the other branch, dipping further south, generally follows the south side of Circle Creek. The two segments of the trail rejoin inside the Reserve where the main park road intercepts Circle Creek. From there the trail continues generally south-southwest, past the Twin Sisters formation and through Pinnacle Pass. Near the south end of the Reserve the trail curves westward. This branch, known as the Salt Lake Alternate, was used by emigrants for freight and stage traffic both to and from Salt Lake City, Utah. This route reconnects with the California Trail and parallels the current road as it crosses the west boundary of the Reserve.

Extant traces of the California Trail within City of Rocks National Reserve are clearly visible both on the ground and in aerial photography. The alignment of the historic trail through the Reserve is best characterized as a landscape corridor through which wagons, people, and livestock dispersed as the ground plane opened and then converged through geographical constrictions such as river fords, mountain passes, and rock formations. At City of Rocks, remnants and features associated with the historic trail alignment are reflected by discontinuous linear features such as ruts and swales in parallel alignments. Most of these are located in the southern end of the Reserve.

The trail corridor is also identifiable where the alignment passes through a topographic restriction, such as a canyon or saddle in a ridge. The entry into the Circle Creek basin at the northeast edge of the Reserve is an example of a canyon restriction. Here, the close alignment of three steep topographic features creates two narrow passages on either side of a small steep-sided knoll, restricting travel from the upper Raft River Valley into the Circle Creek Basin.

The most prominent restriction within the Reserve is Pinnacle Pass, located in the middle of a long, continuous ridge of eroded granite. In this instance distinct wagon ruts occur on both sides of the pass. The character of the trail in this area, which appears similar to modern two-track roads, may be due to uses that postdate westward emigration. The corridor restricts once more at the head of Emigrant Canyon south of Twin Sisters, where the Salt Lake Alternate joined the main trail.

Cultural resources associated with the California Trail include:

- The California National Historic Trail corridor (route and alignment)
- Wagon wheel traces (ruts), and other topographical remnants of trail routes (most notably in Section 23 T16S/R23E)
- Features associated with the trail corridor such as encampment sites and inscription rocks
- Geological formations and unique topographic landmarks documented and described in emigrant journals
- The environmental context and landscape setting for the trail corridor, including historically important viewsheds from the trail corridor.

Significant Resources

The National Trails System Act provides for the identification of high-potential sites and segments based on criteria established in the act. These criteria include historic significance, the presence of visible historic remnants, scenic quality, and relative freedom from intrusion. High-potential segments are those segments of a trail that afford high-quality recreational experiences along a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route. Each site or segment must have the potential to interpret the trail's historical significance and to provide opportunities for high-quality recreation.

High-Potential Sites

Two high-potential sites, both listed in the National Register of Historic Places, are described at or near City of Rocks:

- City of Rocks Complex (public land): One of the great scenic and historic landmarks along the California Trail, the City of Rocks was mentioned in almost every emigrant account. It is an area of fantastically weathered granite formations, which the emigrants fancied as steeples, hotels, houses, temples, and palaces in a “Silent City of Rocks.” It includes a series of sites: Twin Sisters, a natural historic landmark; Pinnacle Pass, wide enough for one wagon; Emigrant Canyon spring, where remnants of the Kelton-Boise stage station and excellent trail ruts can be seen; and Salt Lake Cutoff Junction, where this alternate route comes up Emigrant Canyon to join the California Trail in an open valley approximately one mile south of the Twin Sisters.
- Granite Pass (private land outside the Reserve): As the only route into Nevada north of the Hastings Cutoff that was passable for emigrant wagons, Granite Pass (elevation 6,960 feet) played a key role in determining the path of the California Trail. An easy ascent from the east terminated with a very steep and treacherous descent westward into Goose Creek. The pass was never referred to in emigrant accounts as Granite Pass, but there are several emigrant graves at the summit and along the ascent. Alonzo Delano described the view from the top of the pass in 1849: “From the summit of the hill, a fine and peculiarly interesting view afforded. . . Far as the eye could reach, cones, tables, and nebulae, peculiar to the country, extended in a confused mass” (NPS 1999b: p.264).

High-Potential Segments

The Salt Lake Cutoff (or Alternate), though not yet listed in the National Register of Historic Places, is also mentioned as a high-potential segment at City of Rocks:

- “The Salt Lake Cutoff was developed to bypass the desert trail established by Lansford W. Hastings. The route goes north from Salt Lake City along the base of the Wasatch Mountains, past Brigham City, and turns northwest into southern Idaho. This segment starts in Curlew Valley; travels west past Pilot, Emigrant, and Cedar springs; traverses the Raft River Narrows; passes Emigrant Canyon Spring; and rejoins the main California Trail near City of Rocks” (NPS 1999b: p.231).

Features Associated with Trail Emigrants

A total of 11 monolithic granitic outcroppings with emigrant inscriptions and axle-grease-daubed signatures have been identified within the Reserve; most are in the vicinity of Circle Creek Basin (which the emigrants called Pyramid Circle). Rocks with documented historic inscriptions include:

- Camp Rock, a granite outcrop that served as a camp shelter and a “register rock” where emigrants used axle grease to record their names and the dates of their visit—Camp Rock today is an interpretive pullout where visitors can stop to examine inscriptions and experience the trail
- Treasure Rock, another emigrant register rock and interpretive pullout—local lore holds that stagecoach robbers buried their stolen gold in this vicinity
- Register Rock, an emigrant camping area and inscription site with a present-day interpretive pullout

Documentation suggests that Circle Creek Basin—with a broad open floor, grasses for livestock, and reliable water from several creeks—was a preferred encampment area for travelers on the California Trail. Other likely encampment areas included the basin northeast of Twin Sisters and Pinnacle Pass. This area contains several springs, and the broad expanse of the basin bottom would have provided forage for livestock and a general place to rest before the last pull up Pinnacle Pass.

The narrow passage through Pinnacle Pass also contains physical evidence reflecting heavy use of the pass by emigrants traveling the overland trail. Among these features are wagon-wheel ruts found in the rocks near the approaches to the Pinnacle Pass and the top of the pass before the incline descends to Emigrant Canyon.

At the head of Emigrant Canyon near the junction of the Salt Lake Alternate and the main branch of the California Trail is the site of the City of Rocks “Home Station.” Between 1869 and 1883, the station served passengers and employees on the Kelton-Boise Stage Route, which connected the railhead at Kelton, Utah, with the booming mining district of the Boise Basin. The building no longer exists and the property is considered an archeological site. Features associated with the site include the remains of five structures, including two buildings, a well, cellar, and constructed impoundment pond. Fencing and road traces are also evident.

Topographical Landmarks

Emigrant journals document enthusiastic records of virtually every interesting rock outcrop encountered in the City of Rocks, particularly those in the “rock city” that rims the Circle Creek Basin. These formations comprise a complex that is in many ways the most significant aspect of the trail experience through the City of Rocks. The Twin Sisters formation (which emigrants commonly called Spire Rock and Steeple Rocks) was a particularly prominent geological landmark for passing traffic. Many of the travelers on the main California Trail as well as those on the Salt Lake Alternate commented on this formation in their journals. For those on the Salt Lake Alternate, the Twin Sisters was the only component of the City of Rocks that could be observed from the trail. It is also significant because it marked the junction of the two trails and the last point at which travelers could choose between California or the Oregon Territory.

Settlement Era Features

Portions excerpted from the *Historic Resources Study: City of Rocks National Reserve, Southcentral Idaho* (HRA 1996):

Cultural landscape resources related to the settlement era include circulation, irrigation works, building and structural ruins, homestead sites, mining features, corrals, fences, and gates.

Between 1910 and 1919, the landscape within the Reserve provided the setting for farming, grazing cattle, and mining exploration. During this era, 29 patented tracts were taken within what is today the City of Rocks National Reserve. Of these claims, 19 were dryland farms. Because of relatively poor soils and semi-arid conditions, the majority of these farms were marginal enterprises at best. Many of the fields in production rarely exceeded 100 acres, and most were closer to 30 acres in size (Reserve 2008b). Although large portions of the claims were not ever farmed, much of the land was fenced along claim lines, which significantly altered the open character of the rangelands. As the dryland farmers abandoned their claims in the 1920s due to drought, this land was used for summer and fall grazing. Today many fences in the Reserve mark the boundaries of homestead withdrawals and continue to follow section lines, private landholdings, and grazing allotments. Most fences erected on private land remain and are still made of juniper posts and barbed wire. Corrals are constructed with poles and dimensional lumber associated with livestock management and grazing.

Perhaps the most direct evidence of historic homesteads and agricultural use of the land in the 20th century is reflected in the changes to vegetation throughout the lower elevations and basins of the Reserve. Historically, these areas contained a mosaic of native grasses such as Idaho fescue and scattered sagebrush. Over time, grazing livestock, along with agricultural operations such as grubbing, plowing, and crop production, have left only fragments of this mosaic. Today native vegetation has largely reverted to a dominant cover of sagebrush mixed with weedy grasses, thistle, and nonnative

forbs. In spite of these changes, and with the exception of several relatively small-scale features such as corrals and fences, the cultural landscape of the Reserve is remarkably free of major structural components. In many ways, the larger environmental setting of the Reserve retains much of the landscape character from both the historic overland migration era and the period of homesteading and settlement.

Remnant residential building clusters associated with homestead withdrawals and land use between 1900 and 1929 include a variety of resources. Some of the homestead sites have been reduced to artifact scatters and depressions. Examples of these sites include the Mikesell homesite, the Charles Fairchild homesite, the Thomas Fairchild homesite, and the Walter Mooso homesite. Others, such as the Moon homesite and the John Hanson homesite, contain artifact scatters, above-ground ruins of buildings or structures, and foundation remains.

Only one historical homestead property, the Circle Creek Ranch, retains the residential cluster, irrigation improvements, and hay meadow historically associated with the ranch. This property is located in the Circle Creek Basin, where George Lunsford withdrew 160 acres under the 1862 Homestead Act, receiving a patent for the land in 1888. (A homestead act was one of three U.S. federal laws that gave an applicant ownership at no cost of farmland called a “homestead.”) Lunsford sold his land to William Tracy in 1901. This parcel, plus 160 adjacent acres patented by Mary Ann Tracy as a Desert Land entry, formed the nucleus of the Circle Creek Ranch. The Tracys established their homesite farther east than Lunsford’s original improvements, nearer the California Trail. They spent years constructing a substantial stone house (now in ruins) to replace a log dwelling. The stone used in the construction of the home is from a quarry located about one mile southwest of the homesite, on a rocky knob that is locally known as “Mica Knoll.”

Historic Irrigation Features

In the early 20th century, almost 12,000 acres in Alma, Elba, and Albion were irrigated using Almo, Grape, Edwards, Cassia, Marsh, Basin, and Circle creeks. Although attempts to farm the land were made through homestead claims, with the exception of the bottomlands associated with Circle Creek, most of the land within today’s Reserve was soon deemed less than desirable, if not impossible, to cultivate.

Remnants of two historic irrigation works remain in the Reserve. One is associated with the historic Circle Creek Ranch, which drew water from reservoirs in Dry Canyon, North Circle, and South Circle creeks. William Tracy built a series of dams and ditches on Circle Creek in order to irrigate a small hay meadow. These ditches averaged one foot deep and one and one-half feet wide. The other remnant irrigation system was built by Joseph Moon on the site of the abandoned City of Rocks stagecoach station, (one of the Boise-Kelton stage stations) which he patented in 1925. Near a spring in Emigrant Canyon, he constructed a system including a stone dam below the spring and a “trench” running from the reservoir out of a steep gully to a main ditch and two laterals (Reserve 2008b).

Mining

Only two mines have been developed within the Reserve, neither of which was formally withdrawn for mineral development. The mines appear to have been less-than-full-time endeavors of people whose primary livelihood was derived from agricultural pursuits.

One of these mines is the feldspar (stone) quarry located on Mica Knoll, near the Tracy’s Circle Creek Ranch. Local informants also refer to the “Lloyd mica mine” as being located on this knoll. Indeed, there is evidence of at least nine separate excavations that extend over the top and sides of the knoll. These excavations are relatively small and, based on available information, it does not appear that these sites produced large quantities of material (mica and/or feldspar).

The other mine is referred to by local residents as the “Vern White mica mine,” and appears to date to the late 1940s–50s. Local informants indicate that the mica from this mine was used for insulation (Twitchell 1995).

Cultural landscape resources associated with the settlement period include:

- Boundary demarcations (small-scale elements such as fences and corrals)
- Remains of residential building clusters and irrigation improvements
- Historical mine sites and remnant infrastructure
- Wagon roads not associated with the California Trail, but made by, and left over from the historic rural setting era

CONTACT PERIOD, AMERICAN INDIAN PRESENCE, AND DISPLACEMENT FROM CITY OF ROCKS

The region in which City of Rocks National Reserve is located was once the exclusive domain of native or aboriginal populations. At present, however, it is quite distant from two large American Indian reservations in southern Idaho, four geographically separate colonies of a tribe in Nevada, and another tribe with a very small Utah reservation that are all located in the surrounding region. The two large reservations are those of the Shoshone-Bannock Tribes of the Fort Hall Reservation north of Pocatello, Idaho, to the northeast of the Reserve and the Shoshone-Paiute Tribes of the Duck Valley Reservation to the west of the Reserve. The latter consists of land in both southern Idaho and northern Nevada. To the southwest of City of Rocks in Nevada, the Te-Moak Tribe of Western Shoshone Indians has four separate bands who live at colonies near Battle Mountain, Elko, Lee and the Ruby Valley (the South Fork Band), and Wells. Finally, there is the Northwestern Band of the Shoshoni Nation that has a small parcel of federal trust land in Washakie, Utah. This reservation is southeast of City of Rocks and is in closest geographical

proximity to the Reserve. The contemporary tribes who have the reservations listed above are referred to below and discussed further in the “Socioeconomics” section of this chapter.

The focus of this section is to summarize what is known about the American Indian occupation and use of City of Rocks National Reserve in southern Idaho and nearby areas of present-day northwestern Utah and northeastern Nevada in the period from approximately 1850 to the 1880s. The City of Rocks will be placed into a geographical context with an initial emphasis on the linguistic and cultural identity of the American Indians who were in immediate vicinity of City of Rocks and the surrounding region of the Great Basin and the Snake River Plateau in those decades. Three initial questions are addressed: Who were the American Indians known to have frequented or used resources at City of Rocks such as pinyon pine nuts? Where else did they live at the beginning of the period? What happened to them as the numbers of California Trail emigrants passing through City of Rocks drastically increased in the 1850s and early 1860s at the same time that other nonnatives, especially members of the Church of Latter Day Saints or Mormons, spread out from Salt Lake City after 1847 to colonize irrigable river valleys in present-day Utah and Idaho that were once the exclusive homelands of American Indians known to have traveled extensively to hunt game, fish, and gather a wide variety of plant resources for their basic subsistence?

To identify the contemporary tribes whose ancestors were likely to have been traditionally associated with the City of Rocks in the pre-reservation and early reservation periods, it is necessary to ask the questions above and others about later periods of history during which contention and hostilities between native peoples and newcomers (both emigrants who passed through the area on the California Trail and those who stayed on as settlers) over land and resources resulted in a series of treaties negotiated by representatives of the U.S. federal government and tribal leaders between July and October 1863. Those treaties of friendship followed the infamous Bear River Massacre of

January 29, 1863. Subsequently, displacement of native peoples from their homelands continued. Some of the people secured reservations, one established in 1867 under an Executive Order for a reservation at Fort Hall, Idaho, and another under an 1877 Executive Order for a reservation at Owyhee, Nevada, while others in Nevada and Utah established and maintained nonreservation settlements or colonies within their aboriginal homelands until reservations were established at various times between 1917 and 1977 in Nevada, and as recently as 1987 in Utah. The complex and unique history of the four tribes, their constituent bands, and the reservation communities is touched on in this section, as well as in a separate section on the contemporary reservation communities.

The beginning of the period covered in this section followed closely upon U.S. acquisition of a vast portion of the western United States from Mexico through the Treaty of Guadalupe de Hidalgo and the discovery of gold on the west side of the Sierra Nevada range in 1848, and then California statehood in 1850. Those events, combined with the settlement of Salt Lake City and nearby areas by Mormons in 1847, resulted in tumultuous times as emigrants initially traveled through the homeland territories of American Indians along the Oregon Trail in the 1840s, and subsequently along the California Trail after the route through Granite Pass and City of Rocks was established by Mormons on their way back to Utah from California in 1848. The emigrant wagon train traffic south along the Raft River from the Snake River, then through City of Rocks and Granite Pass towards the Humboldt River and ultimately to California, drastically increased in the 1850s while other newcomers, including many Mormons, began to colonize native homelands around Salt Lake City and in closer proximity to City of Rocks.

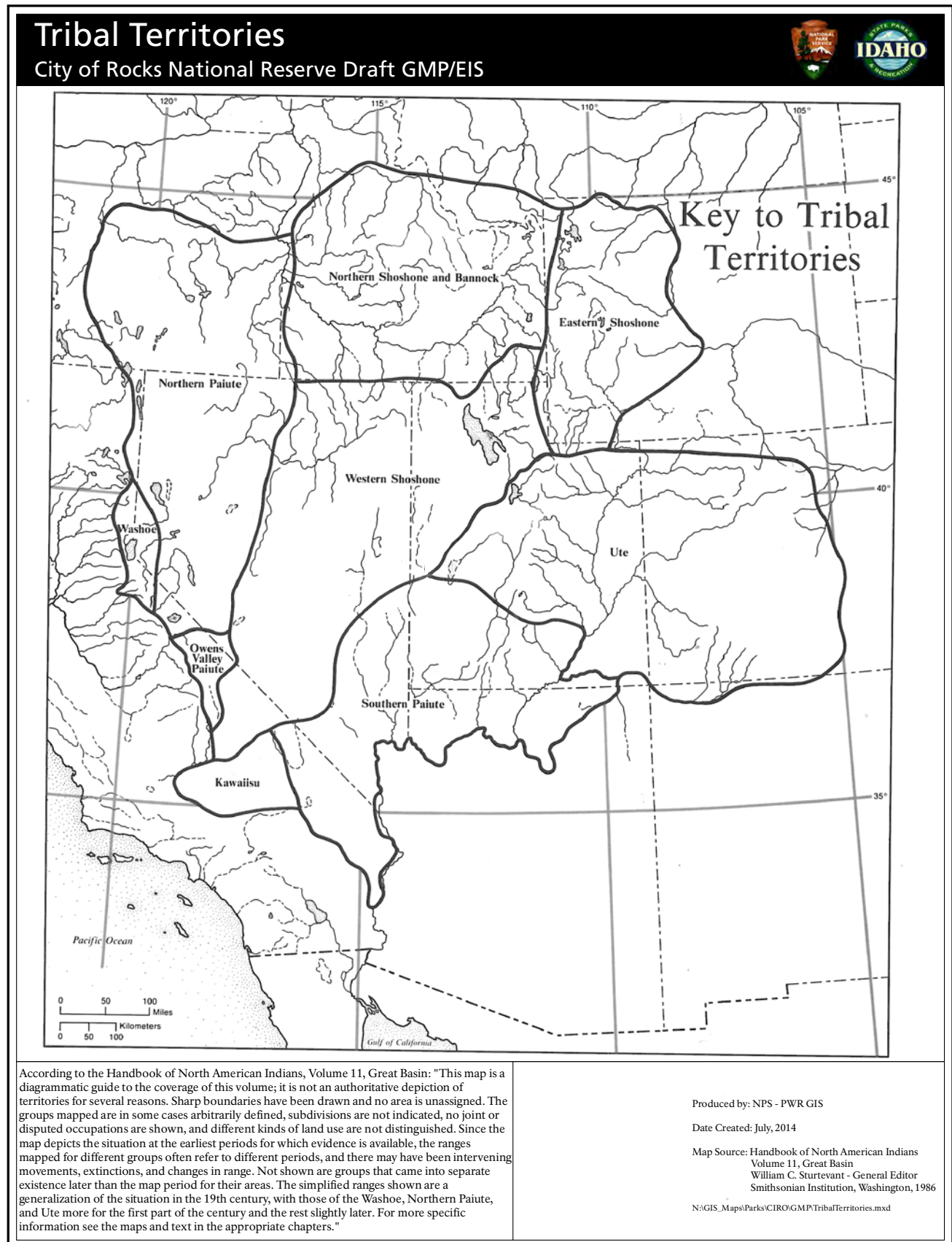
The end of the period to be described here is the 1880s when many native peoples in northeastern Nevada, northwestern Utah, and southern Idaho had removed to the two large reservations that still exist. At the same time several relatively small groups of native peoples in northeastern Nevada refused to move to reservations and held on to their homelands in geographically dispersed areas over which there was initially less competition with settlers, but which ultimately became colonies or settlements adjacent to nonnative communities. Finally, in northwestern Utah and southern Idaho a few small groups of native people continued to reside in relatively close association with non-Indian communities as landless people who converted to Mormonism, then acquired access to a small amount of land because of that connection.

Broadly Defined Tribal Territories in Terms of Linguistic and Cultural Groups in the Great Basin

Planning for the 20-volume *Handbook of North American Indians* to be published by the Smithsonian Institution began in the mid-1960s, and all of North America, including the continental United States, Alaska, and Canada, was to be addressed in a series of 10 volumes on various geographically defined cultural areas, with 10 other proposed volumes to be focused on special topics such as languages (volume 17), cross cultural area comparative volumes, as well as an introductory volume, 2 volumes of biographies and an index volume. Although the 20 volume set remains incomplete, the 10 volumes on the geographical areas were published between 1978 (volume 8 on California) and 2004 (volume 14 on the Southeast). Volume 11 on the Great Basin was published in 1986. It presented, as do all other geographical volumes, a generalized map to show the region covered in the volume. A copy of the Great Basin map titled “Key to Tribal Territories” appears in “Figure 21. Tribal Territories.”

In the center of the map, one of the nine areas is labeled Western Shoshone. Its northern boundary coincides with northern boundaries of Nevada and Utah, with Idaho to the north. The northern area is labeled Northern Shoshone and Bannock. To the immediate west of these two areas lies an area labeled Northern Paiute. To the immediate east of first the two areas cited here, lies an area labeled Eastern Shoshone. The named "Tribal Territories" are a mixture of linguistically defined populations and American Indian indigenous populations with general locational names that distinguish them from each other and are artifacts of treaty making in 1863 that will be described further below. On the basis of comparing a variety of maps, including the one in figure 21, it is clear that the Western Shoshone area actually intrudes into northwestern Utah and southeastern Idaho. In doing so, the generalized perspective presented in figure 21 places historic and modern day Western Shoshone into areas that were occupied by Northwestern Shoshone, Eastern Shoshone, Northern Shoshone and Bannock as those terms were used in a series of treaties concluded in 1863. Specific examples are referred to below.

FIGURE 21. TRIBAL TERRITORIES



The specific names of the linguistic groups that are relevant to the history of City of Rocks and the surrounding region are Shoshone, Bannock, and Paiute. All three are considered by linguists to be Numic languages that belong to the Uto-Aztecan family. They have been divided further into Northern Paiute-Bannock that is among a series of Western Numic languages and Shoshone (Western, Northern, and Eastern) among a series of Central Numic languages. Interestingly, although the Bannock were Northern Paiute speakers (Liljeblad, Fowler, and Powell 2012) who migrated east to live among Northern Shoshones long before the period under consideration here, the Bannock and Northern Shoshones “spoke separate and mutually unintelligible languages” (Murphy and Murphy 1986: p.284). Anglicized versions of the names these different groups used for themselves are Newe among the Western Shoshone; Numa among the Northern Paiute; and, Nimi among the Northern Shoshone and Bannock. All three of these names stand for “people.”

Food-named Shoshoni and Northern Paiute Groups during the Pre-reservation and Early Reservation Periods

“Among Shoshoni from the Snake River, Idaho to Death Valley, California, the largest permanent organization was the village. There is not a single feature which warrants calling any of them ‘band.’ There are no sharp dialectic, cultural, or political boundaries, nor well-defined named groups larger than the village. Names were sometimes applied to the people of a general but not clearly defined region. Nevada Shoshoni called Idaho Shoshoni “salmon eaters” and were called by them “pine-nut eaters,” but neither considered themselves to belong to bands with such names. In fact they rarely used such names for themselves. Nevada Shoshoni never called themselves pine-nut eaters, though some of them occasionally referred to people in another region as eaters of a certain seed . . . The temporary and shifting intervillage alliances of this region, therefore, instead of consistently allying people with well-defined territories,

entailed a linkage of village with village which extended, network like, throughout the entire area. Political bonds, like subsistence areas interlocked in all directions” (Steward 1938: p.248).

The quote above is from a study by anthropologist Julian H. Steward who was born in Washington, D.C., in 1902 and who then went to a preparatory school near Death Valley, California, beginning in 1918. Steward developed an interest in the Shoshone and Paiutes of the area before he spent an initial freshman year of college at the University of California, Berkeley. One of his courses was with Alfred Kroeber and two other anthropologists who represented the first generation of anthropologists who introduced the discipline at Berkeley at about the same time as Steward’s birth. Kroeber completed the manuscript for his *Handbook of the Indians of California* in 1917. It was subsequently published by the Bureau of American Ethnology in 1925, the same year in which Julian Steward returned to Berkeley from Cornell to begin graduate studies.

In his *Shoshonean Dialects of California* (1907), Kroeber wrote about the names used by Indians for each other and by others: “In great part the Plateau Shoshone [a large area from southern California, east through the Great Basin and towards the Rocky Mountains] called one another by names composed of a food and the word eaters, such as “fish eaters,” “buffalo eaters,” “mountain sheep eaters,” “root eaters,” “squirrel eaters,” and many others . . . In most cases they lacked tribal names for themselves, the word num or some variant such as nov-inch, meaning simply persons or people, being used . . . Such tribal names as Ute, Paiute, Monachi, Chemehuevi, and probably most of the others commonly known, were not used by the people whom they designate, but by the tribes referring to them . . . The result of all these circumstances is that when tribal names have definitely taken hold, either through Indians of other families or through the whites, the people to whom they apply are still indeterminate” (Kroeber 1907: p.102).

Kroeber discussed both the Shoshones and the Paiutes of California with reference to the Great Basin and neighboring states in his Handbook and concluded as follows about each of them: “In one sense, however, the Shoshoneans are an un-Californian people. Except for a highland strip in the south . . . they have nowhere crossed the Sierra Nevada, and therefore failed to penetrate the great valley and mountain area which is the heart and bulk of California. More than half of their territory that we are here concerned with is in that essentially Shoshonean region, the Great Basin” (Kroeber 1925: p.574). With reference to the Northern Paiute, Kroeber wrote: “These people should be described in connection with those of Nevada and Oregon, of whom they constitute a minute peripheral fraction. They can, in fact, not be described here because nothing of any significance is known of them, and little of moment of their main body to the east. Their country was un-Californian. What has been said before of Great Basin tribes that belong to California unnaturally and only through the courtesy of arbitrary political lines is applicable here . . . We must leave the Northern Paiute of our northeasterly angle of California to some future historian of the bordering States” (Kroeber 1925: p.582-583).

As a second generation anthropologist who choose to work in the Great Basin, Julian Steward and others, notably Omer C. Stewart, began, in part to address the lack of information about Shoshones and Paiutes that is relevant to providing a context for understanding the history of native peoples who lived in and around City of Rocks. By 1936, Steward engaged in six months of research with funding from the University of California and a grant-in-aid from the Social Science Research Council, and in 1936 he had funding for an additional four months of travel and research from the Bureau of American Ethnology. His research objectives according to the first page of the preface in his Basin Plateau Aboriginal Sociopolitical Groups published in 1938 were

- to make an ethnographic reconnaissance of the Western Shoshoni and some of their Northern Paiute, Ute, and Southern Paiute neighbors.
- to analyze the functional relationship of the different parts of the culture to one another and to the local environment.
- to ascertain the types of Shoshonean sociopolitical groups and to discover their ecological and social determinants.

By the time that research took place, the two large reservations referred to above, those of the Shoshone-Bannock Tribes of the Fort Hall Reservation and the Shoshone-Paiute Tribes of the Duck Valley Reservation, were well established with resident populations who previously lived in many other places. Steward’s methodology was to travel extensively throughout the Great Basin and Snake River Plateau to interview elderly tribal members about where and how they lived prior to the establishment of reservations. He was not interested in documenting the contemporary ways of life in the 1930s, but he was interested in the recollections tribal elders had about the past. In this sense, his goal was to “document” ways of life throughout the region before the conflict with settlers that ultimately led to extensive loss of traditionally occupied areas, displacement from them and the uneven development of reservations. Steward did not specifically discuss City of Rocks, but his informants described “Pine Nut Eaters” who primarily lived in the Grouse Creek area of what became northwestern Utah (Steward 1938: p.173-177). He also makes reference to Chief Pocatello as having been born in Grouse Creek before moving to the Bannock Creek area of the Fort Hall Indian Reservation (1938: 212-218). Steward’s map of the Basin-Plateau area shows symbols for “Native Village Site[s]” in the vicinity of City of Rocks: two near Goose Creek to the northwest; and two on the east side of the Raft River and below the Snake River to the northeast. Pine nut eater village sites were more numerous south of City of Rocks in northwest Utah (Steward 1938: Figure 1).

CONTEMPORARY AMERICAN INDIAN RESERVATIONS

While the region in which City of Rocks National Reserve is located was once the exclusive domain of native or aboriginal populations who made use of a wide variety of resources in a vast territory, the Reserve is now quite distant from contemporary American Indian reservation communities in southern Idaho, northwestern Utah, and northern Nevada. In this section, the term “traditionally associated peoples” as it is defined in NPS Management Policies 2006 is introduced and four federally recognized tribes and a tribal consortium are described relative to their potential associations with the Reserve. The limited historical information on the direct connections ancestors of the various contemporary tribes, presented in greater detail in an earlier section, is reviewed briefly in association with the fact that Reserve staff has observed American Indian people and others visiting City of Rocks to take advantage of resources such as pinyon pine nuts.

In NPS *Management Policies 2006*, the term “traditionally associated peoples” is used as a foundation for discussing the relationships between contemporary human populations and park lands that are important to consider when delving into the history of those groups and their associations or relationships with park lands:

Traditionally associated peoples – social/cultural entities such as tribes, communities, and kinship units, as well as park neighbors, traditional residents, and former residents who remain attached to a park area despite having been relocated, are “traditionally associated” with a particular park when (1) the entity regards park resources as essential to its development and continued identity as a culturally distinct people; (2) the association has endured for at least two generations (40 years); and (3) the association began prior to the establishment of the park (NPS 2006a: p. 159).

As noted previously, variations of the geographically based terms Eastern Shoshone, Northwestern Shoshone, and Western Shoshone were used in a series of 1863 treaties of friendship negotiated by representatives of the federal government to refer to numerous “bands” of American Indians that consisted of Shoshones, Bannocks, and Paiutes who often referred to themselves and other groups with distinctive localized names that were subject to change. In the period following those initial treaties and the piecemeal establishment of geographically dispersed reservations, the tribes came to refer to themselves in terms of both the names of their reservations and the broader geographically based categories. The following four contemporary tribes may have the potential to be traditionally associated with the Reserve on the basis of their histories and on-going associations. However, in most cases both the historical record and contemporary associations are not well documented. The order in which the tribes are presented here is based on when their reservations were established rather than alphabetically or according to any sort of ranking. Finally, a contemporary consortium of Western Shoshone Tribes is described.

Shoshone-Bannock Tribes of the Fort Hall Reservation

Beginning with NPS consultation and research with this tribe on behalf of the Reserve in the mid-1990s, the Shoshone-Bannock Tribes have expressed an interest in the Reserve. Although the reservation is distant from the Reserve, knowledgeable tribal members have indicated that they or others have visited the Reserve periodically to gather pinyon nuts. The historical record places the Reserve within the territory of at least one band of Shoshone as noted in Article 4 of the Treaty of Box Elder: “The country claimed by Pokatello, for himself and his people, is bounded on the west by Raft River and on the east by the Porteneuf Mountains.”

The association of Pocatello with City of Rocks was also documented in the period prior to the 1863 and subsequently. Following the establishment of the Fort Hall Reservation,

under the terms of the 1868 Treaty of Fort Bridger, Pocatello and others continued to live in northwestern Utah and could have visited City of Rocks. Later, Pocatello resided in the Bannock Creek portion of the reservation, but visits to locations with pinyon trees and other resources in their old homeland may well have continued. All indications are that members of the contemporary Fort Hall Reservation consider themselves or their tribe to be traditionally associated with the Reserve.

Shoshone-Paiute Tribes of the Duck Valley Reservation

The National Park Service consulted with the Shoshone-Paiute Tribes and also included them in a research project in the mid-1990s (Myers 1998). At the time, tribal officials did not indicate an interest in or association with the Reserve. The research did not find any evidence for historic or ongoing associations between members of the tribe and the Reserve. In the course of preparing this plan, extensive research on the history of the Shoshone-Paiute Tribes sought to find any evidence of associations with the Reserve. None was found. It is possible that associations with the Reserve were developed by members of this tribe since the initial establishment the first Western Shoshone reservation at Duck Valley in 1877 under the terms of the 1863 Treaty of Ruby Valley. Information in support of such associations would be welcomed.

Te-Moak Tribe of Western Shoshone Indians (this tribe consists of four bands with colonies at Battle Mountain, Elko, Lee and other locations [the South Fork Band], and Wells)

In an effort to include all contemporary tribes that might have associations with the Reserve, the history of this Western Shoshone tribe was studied along with the others referenced here. As with the Western Shoshone group that later became the Shoshone-Paiute Tribes, what

became the Te-moak Tribe acquired reservations lands under the terms of the Treaty of Ruby Valley. However, the geographically dispersed communities retained their nonreservation status well into the 20th century because they refused to leave their homelands in northern Nevada for the Duck Valley Reservation.

Of the four constituent colonies of the Te-Moak Tribe, Wells is geographically closest to the Reserve, but no historical documentation was found to establish associations between members of the Wells Colony and the Reserve. Their reservation was established by an Act of Congress on October 15, 1977. The Wells Colony and the others who constitute the Te-Moak Tribe should be contacted to determine if they have any associations with the Reserve.

Northwestern Band of the Shoshoni Nation

Although this tribe received federal recognition as recently as 1987, they did so under the terms of the Treaty of Box Elder with the northwestern bands. Their ancestors, including Sagwitch and other leaders, have a well-documented history of residence in northwestern Utah and southern Idaho that included having been among those Shoshone whose numbers were drastically reduced at the Bear River Massacre of January 29, 1863, near Preston, Idaho. In the years following the Treaty of Box Elder, some members of this group lived in close association with Church of Latter Day Saints settlers, became converts, and lived on lands owned by the church at Washakie and elsewhere. In the 1880s, some were said to travel west in the autumn to harvest pinyon nuts. Whether they went as far as City of Rocks then or more recently is not known.

The National Park Service consulted with members of this tribe extensively in the mid-1990s concerning the Bear River Massacre site. This tribe should be consulted about possible associations with the Reserve.

Western Shoshone National Council

This organization is a consortium of a number of Western Shoshone tribes from throughout Nevada and elsewhere that has been pursuing land claims since 1984 under the terms of the Treaty of Ruby Valley as they interpret them. They claim an extensive aboriginal territory that is greater than the one used by the Indian Land Claims Commission, and it is important to note that the northeastern corner of the territory as defined by the consortium would either include the Reserve or be very close to it. As noted in an earlier section, the contemporary Western Shoshone consortium has extended their territory into that of the northwestern Shoshone as defined in the Treaty of Box Elder in 1863. The National Park Service and Reserve partners, including management and staff employed by Idaho Parks and Recreation, should be aware that this consortium exists and that some of the tribes described above may be members.

In summary, the contemporary tribes that have the greatest potential to be “traditionally associated” with the Reserve appear to be the Shoshone-Bannock Tribes of the Fort Hall Reservation and the Northwestern Band of the Shoshoni Nation. Although historical and contemporary information is not known about the associations the other tribes may have with the Reserve, it is nevertheless important to consult with them in the interests of being inclusive.

VISITOR EXPERIENCE

VISITOR EXPERIENCE: ACCESS AND TRANSPORTATION

The NPS Cooperative Park Studies Unit at the University of Idaho conducted a visitor services project at City of Rocks National Reserve in 2008 (Reserve 2009b). This standard NPS method for obtaining information about park visitors and visitation patterns took place during September 6–14, 2008. A total of 350 questionnaires were distributed to visitor groups. Of those, 256 questionnaires were returned, resulting in a 73.1% response rate.

Results showed that visitors were often in family groups (42%) of two people (41%) or three to four people (27%), while 30% were with friends. The most common visitor ages were 21–45 years old (48%), followed by 51–65 years old (23%), 15 years or younger (13%), and 66 years or older (8%). Forty-seven percent were first-time visitors to the Reserve, while 30% had visited five times or more. The earliest year reported for a first visit to the Reserve was 1942. International visitors were often from the United Kingdom (38%), Switzerland (33%), and four other countries. U.S. visitors comprised 97% of the total visitation and were primarily from Idaho (38%) and Utah (34%), with 32 other states represented in smaller numbers. City of Rocks National Reserve was the primary destination of 66% of visitor groups.

Prior to visiting, visitor groups most often obtained information about City of Rocks through previous visitors (61%) and word of mouth from friends or relatives (56%). Most visitor groups (95%) obtained information about the Reserve prior to their visit, and most groups (88%) received the information they needed. Sixty-two percent indicated they would prefer to obtain information from the City of Rocks website to plan a future visit.

Reasons for visiting the Reserve were sightseeing (70%) and art, including photography, painting, and drawing (68%). The primary recreational activities visitors participated in were rock climbing (53%) and general sightseeing (26%). The most visited sites included Bath Rock (72%) and Bread Loaves (64%). Fifty-nine percent of all visitor groups participated in rock climbing activities. Seventy-seven percent of visitor groups participated in traditional rock climbing, while 76% took part in sport climbing (see “Acronyms and Glossary” for climbing definitions).

Forty-three percent of visitor groups had two members in their household.

Of visitor groups that spent fewer than 24 hours visiting the Reserve, 30% spent 5 or more hours. For those who visited for more than one day, 67% spent two or three days. The average length of stay for all visitor groups was 43 hours (1.75 days).

The most used visitor services and facilities included campsites (63%), brochures and maps (52%), and the visitor center (50%). Most of the visitors (91%) rated the overall quality of facilities, services, and recreational opportunities in the Reserve as “very good” or “good.”

May, June, and September are generally the months of highest visitation at the Reserve and received a monthly average of 15,500 people during 2009. During 2011, June, July, and September were the months of highest visitation and received a monthly average of 16,256 people. There is also substantial visitation during March, April, August, and October. During the slower winter months of November through February visitation is reduced to an occasional visitor seeking winter recreation. According to statistics reported by the Reserve to the National Park Service, visitation has generally been trending upward. Table 32 lists Reserve visitation from 2001 to 2011.

TABLE 32. CITY OF ROCKS NATIONAL RESERVE VISITATION

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Jan	1,050	1,050	875	500	500	500	500	500	560	630	560
Feb	750	1,163	1,380	500	500	500	500	360	805	910	455
March	775	1,200	1,587	750	750	500	2,850	420	1,575	1764	1,050
April	1,200	1,500	4,505	6,969	4,875	7,984	5,369	2,885	4,290	3,591	2,374
May	11,068	9,614	10,447	10,847	7,476	11,225	13,530	12,411	13,136	8,429	7,986
June	11,180	16,537	14,073	12,158	11,934	12,102	13,241	15,561	17,900	15,702	16,878
July	9,824	11,910	12,625	10,430	9,933	10,035	10,332	12,716	12,881	14,840	17,378
August	11,073	8,274	7,473	11,838	10,986	10,970	8,336	12,939	12,061	11,974	10,675
Sept	8,750	12,005	12,082	12,138	9,122	12,996	11,330	12,285	15,372	13,902	14,511
Oct	7,276	8,761	10,109	7,206	7,631	5,951	7,573	8,282	10,133	12,446	12,485
Nov	2,219	4,320	3,223	2,250	3,028	3,568	5,222	5,598	6,364	7,955	9,362
Dec	3,000	2,000	1,500	1,000	500	800	750	1,936	1,572	2,863	5,726
TOTAL	68165	78334	79879	76586	67235	77131	79533	85893	96649	95,007	99,439

(NPS Public Use Statistics Office 2011: Annual Recreation Visits Report for 2006-2011)

VISITOR EXPERIENCE: VISITOR USE OPPORTUNITIES

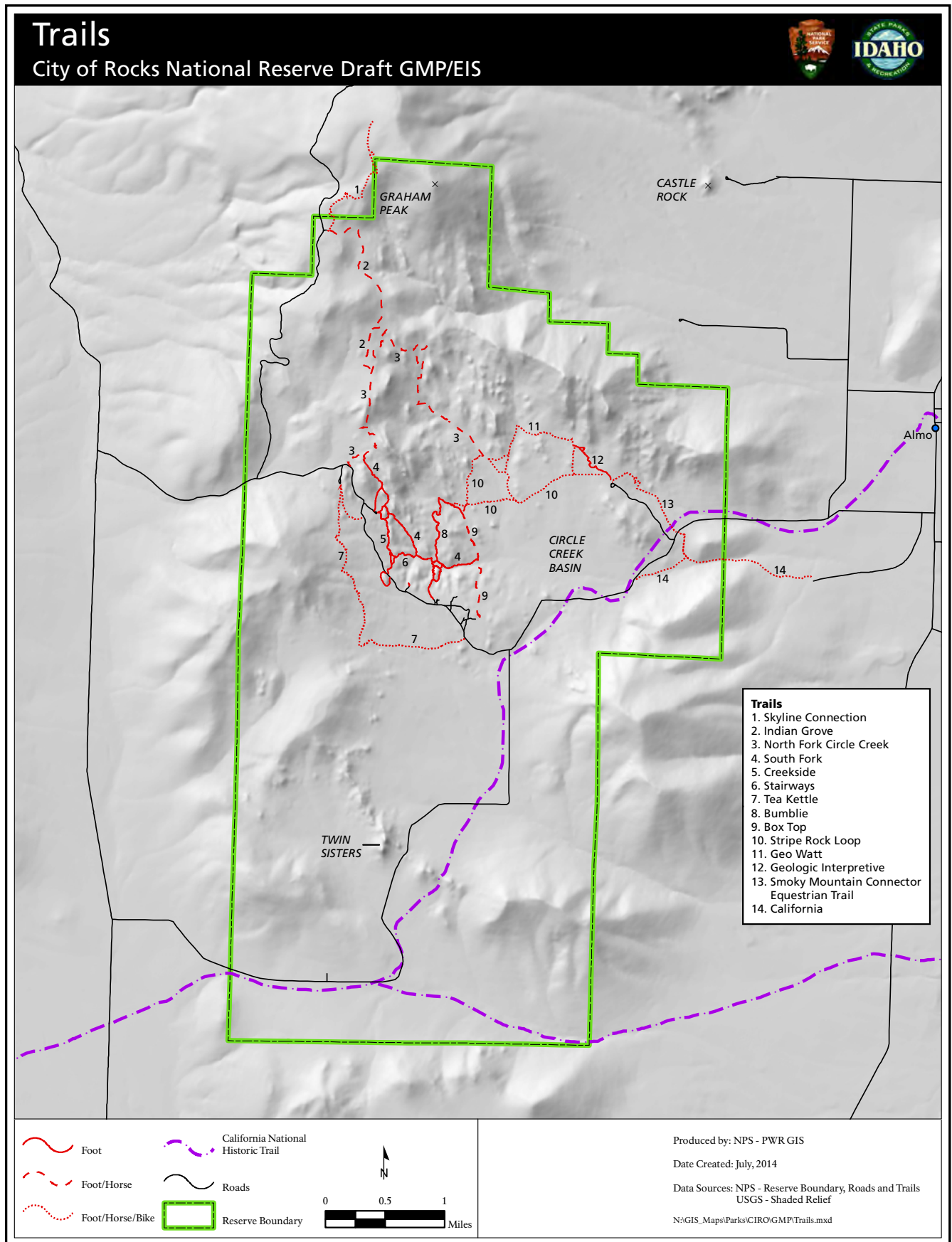
The multitude of dramatic granite rock formations within the Reserve and the topography of the rural landscape provide a wealth of recreational opportunities. The 2008 visitor survey clearly showed that rock climbing, hiking, and camping are major recreational activities within the Reserve (“Figure 22. Trails”). Most activity occurs on the weekends between April and October; however, there is a steady increase in visitors arriving during the week. Approximately 85,000 visitors pass through the Reserve annually. Many come from the metropolitan areas of the Wasatch Front in Utah (34%), or from the populated areas of southern Idaho (38%). Nearly every state is represented in visitor registers, whose listings also include foreign climbers (3%) touring the United States.

Other forms of recreation include picnicking, horseback riding, mountain bicycling, hunting, cross-country skiing, snowshoeing, snowmobiling, pine nut gathering, sightseeing, bird watching, and photography. Most of the recreational users are concentrated in the state-owned Section 36.

As City of Rocks has received increased media attention for its sport routes and quality of climbing and camping, the area’s popularity has increased substantially. The Reserve has become world-renowned for rock climbing activities, and climbing remains the primary recreational activity within the Reserve (at 58%).

Currently Reserve staff, posted rules and regulations, the NPS website, and compliance rangers help control the location, volume, and extent of recreational activities in the Reserve.

FIGURE 22. TRAILS



Climbing

The popularity of the Reserve for rock climbing has increased significantly since the early 1960s, when the first recorded roped climbing occurred at City of Rocks, primarily by a small group of climbers from northern Utah. A climbing club known as “The Steinfelds” and members of the Lowe family and their friends began to visit the “City” regularly. The routes these climbers established typically followed crack systems. Although there were few climbers visiting the Reserve during this time, the Utah group was very active, establishing at least 200 routes.

During 1970–85, climbing at City of Rocks mirrored the changes seen in climbing nationally. The number of climbers visiting the “City” grew at a corresponding pace. Initially climbers from the local region dominated the climbing activity, but by the mid-1980s visitors from outside the region began to outnumber local climbers. Up to 20 new routes were established each year between 1975 and 1985 and, as in the rest of the country, the use of bolts became more popular. In 1985 the first climbing guide to the City of Rocks was published, describing nearly 300 routes. Today more than 600 established technical routes exist in the Reserve, and at least four climbing guidebooks are available. Most climbing is concentrated on popular crags near roads, and the majority of technical climbing routes are moderate in difficulty.

City of Rocks National Reserve has become famous for sport climbing, while still offering classic crack climbs and traditional face climbs. There is also a significant amount of scrambling on the more accessible rocks by nontechnical climbers. Climbing at City of Rocks is attracting a larger number of people with varying levels of skill and experience than ever before.

Camping

Demographics indicate that most campers come from Idaho and Utah. A further breakdown shows that 38% of the campers are from Idaho, 34% from Utah, and others originate from 32 other states. International campers account for the other 3%.

Camping has grown in popularity in the past several years. Those who visited for more than one day (67%) spent two or three days camping in the Reserve. Campers now have the option of making their own reservations or having the call center make the camping reservation for them. Because of the reservation system and the popularity of the campground, the Reserve has increased weekend usage to nearly 100% reserved from Memorial Day Weekend through mid-July.

Visitors currently camp in designated campsites, with Section 36 receiving the greatest use. People like to camp near the rim of the Silent City, and large groups camp in the Bread Loaves group camp in an area behind the Bread Loaves granite formation. Twin Sisters group camp and Juniper group camp are located at the southern end of the Reserve. Backcountry camping is also permitted in the Indian Grove area. Campers can obtain permission from landowners to camp on private property as well.

The Reserve has 64 standard campsites and during the major holidays (Memorial Day Weekend, Fourth of July, and Labor Day), all of these sites are occupied. The nearby Smoky Mountain Campground unit of Castle Rocks State Park is also booked during popular weekends and holidays (see *Rim Development Concept Plan for City of Rocks National Reserve* for an in-depth discussion on camping in Appendix D).

Public campgrounds are located 25 miles north of the Reserve in the Albion Mountain division of Sawtooth National Forest, which abuts the northern boundary of the Reserve. Dispersed, primitive camping is permitted throughout most of the Sawtooth National Forest. Camping is permitted on BLM landholdings adjacent to the Reserve. These areas are managed primarily for grazing, and no formal campsites exist on these lands; however, dispersed camping does occur and campers use the area for free. Some of these campers use the showers and toilets at Smoky Mountain Campground.

At least nine private campgrounds operate within a 50-mile radius of the Reserve. The closest ones are located in Almo and Elba.

Equestrian Use

Equestrian use is a traditional recreational activity that continues in the Reserve today. The Reserve presently provides equestrian camping and staging at Smoky Mountain Campground (to the east and outside the Reserve) and at the Juniper group campsite in the Reserve (to the south). Over the years equestrians have been interested in developing an equestrian staging area on the west side of the Reserve, which would give riders easier access to trails on the west side. It would also improve safety and resource degradation created by the current indiscriminate trailer parking along the county road.

In June 2005 an interdisciplinary team of NPS, BLM, and Reserve staff, and a representative of the Cache Peak Backcountry Horsemen, convened an on-site meeting for an equestrian trail and parking area within the Reserve from which to stage horse-back riding recreation. Eight potential sites previously scoped by the Reserve staff were visited for discussion of site suitability and issues of resource conflict and to identify which sites should be further analyzed as alternatives for an environmental assessment.

The following 11 criteria were used for preliminary evaluation of each potential site:

- Provides location in the central or western portion of the Reserve that balances the access and geography of the equestrian trails and parking to be developed at the Smoky Mountain Campground on the eastern side of the Reserve
- Not intrusive to key viewpoints or viewsheds
- Not located within the California Trail sub-zone identified in the 1996 City of Rocks National Reserve comprehensive management plan
- Minimizes natural and cultural resource impacts
- Assumes site work would incorporate best management practices and other environmentally friendly procedures

- Holds generally to the Scenic Back Country Byway corridor that transects the Reserve
- Location selected offers choice of all-day and half-day trail ride opportunities
- Access to water for horses (while this would be nice, it is not a requirement for siting a day-use equestrian staging area)
- Located on publicly owned land and not private land, unless an exchange-of-use agreement exists or can be established between the land owner and the Reserve
- Site can accommodate up to five trucks with horse trailers
- Development would only require a modest amount of site work and engineering
- Located in proximity to existing horse trails

Of the eight potential sites visited only three were considered suitable for further analysis as they met all the evaluation criteria. These sites were:

- Lloyd Triangle: privately owned land that is within the Public Use and Development corridor of the Natural and Recreation Resource Area of the comprehensive management plan, and therefore merits further consideration provided an agreement could be arranged with the land owner.
- Elephant Rock to Tea Kettle Trail: considered feasible pending proper site analysis to avoid seasonal wet areas.
- Bread Loaves: privately owned land that is part of an exchange-of-use agreement between the landowner and the Reserve.

Five sites were considered not suitable based on the explanations provided:

- Smoky Mountain Campground: this site was already under development to provide for a staging area on the east side of the Reserve.
- BLM land outside of the Reserve on the north side of the east entrance road:

this land is also part of a BLM grazing allotment. Considered outside the scope of this project as it is outside the Reserve boundary and was not addressed by the 1996 comprehensive management plan. This site should only be considered under long-term scenarios that would involve an amendment to the plan.

- Nicholson Ranch: considered outside the scope of this project because the land is privately owned, and the landowner is not receptive to negotiating on its status.
- Treasure Rock: considered outside the scope of this project because the land is privately owned and is within the foreground of the California Trail corridor, thus precluding the siting of recreation facilities.
- Haines Place: considered outside the scope of this project because the land is within the foreground of the California Trail corridor, thus precluding the siting of recreation facilities.

A site not considered at that time, but potentially suitable for consideration, is NPS land adjacent to the south side of the Emery Road a short distance east of Logger Springs Road.

This GMP proposes an equestrian staging area on the west side in alternatives B and C (see “Chapter 3: Alternatives”).

VISITOR EXPERIENCE: INTERPRETATION AND EDUCATION

Cooperating Association

Staff at City of Rocks National Reserve have made great strides over the past 20 years in conveying the history and significance of the Reserve to its nearly 100,000 annual visitors. In 1991, state park personnel worked to establish the City of Rocks Historical Association. This cooperative association included a local citizens’ board and members who took great interest in the Reserve’s story. Over the years, the association helped to develop brochures, maps, educational gifts, and relevant souvenirs

that were sold at the visitor center. Members were also active in providing history and geology tours to visitors and local school children. This organization became the City of Rocks Heritage Association in April 2003 and broadened its scope and membership. Today it has become the community organization known as the Cache Peak Civic Association. These organizations in their various forms have been integral to the Reserve’s interpretive efforts and have taken on numerous projects, such as funding the decorative brick and stone sign at the visitor center and developing the Reserve’s first orientation film, entitled *A Short Walk through Time*.

Interpretive Planning

Official interpretive planning efforts began in the early 1990s and resulted in the development of three wayside exhibits at Camp Rock (topic: California Trail), Bath Rock (topic: orientation and Reserve concept), and Twin Sisters (topic: California Trail), installed in 1993. A few years later, NPS representatives and Reserve staff began development of the *City of Rocks National Reserve Interpretive Prospectus*. The final document was approved on November 5, 1998. This document established interpretive themes, goals for the program, existing conditions, and a gap analysis. It remains the only approved interpretive plan for the Reserve; however, in 2002 the *Wayside Exhibit Concept Plan: California Trail Exhibits* was produced to specifically implement recommendations of the interpretive prospectus. The exhibit plan led to the development, fabrication, and installation of 11 interpretive wayside exhibits from the visitor center in Almo to the southwest entrance of the Reserve. The current wayside exhibits (low profile, bulletin cases, and kiosks) are shown in table 33 for City of Rocks National Reserve and Castle Rocks State Park.

TABLE 33. WAYSIDE EXHIBITS FOR CITY OF ROCKS NATIONAL RESERVE AND CASTLE ROCKS STATE PARK

Location	Theme	Note
Visitor Center	California Trail	NPS, Harpers Ferry, low-profile
Visitor Center	California Trail	NPS, Harpers Ferry, low-profile
Visitor Center	Orientation/Information	NPS, Harpers Ferry, 2 panel bulletin case; 1 fixed info, 1 changeable
Smoky Mountain	California Trail	IDPR, located beside entrance fee station, low-profile
Smoky Mountain	Orientation/Information	IDPR, located beside entrance fee station, bulletin case
Smoky Mountain	Orientation/Information	IDPR, located near Camp Host site, bulletin case
Smoky Mountain	Orientation/Information	IDPR, located at Equestrian Parking Area and Trailhead, 2 panels kiosk
Circle Creek Overlook	Landscape/Land Use	IDPR, but located on federal lands (Reserve), low-profile
Circle Creek Overlook	Orientation/Information	NPS, bulletin case located on vault toilet wall
Camp Rock	California Trail	NPS, Harpers Ferry, low-profile
Treasure Rock	California Trail	NPS, Harpers Ferry, low-profile
Hansen Hill	California Trail	NPS, Harpers Ferry, low-profile
Emigrant Canyon	California Trail	NPS, Harpers Ferry, low-profile
Emigrant Canyon	Kelton-Boise Stage Route	NPS, Harpers Ferry, low-profile
Juniper Campsite	Orientation/Information	NPS, Harpers Ferry, low-profile
Junction Entrance-SW	California Trail	NPS, Harpers Ferry, low-profile
Practice Rock CG #12	Orientation/Information	NPS, bulletin case located on vault toilet wall, on state land
Flaming Rock CG #27	Orientation/Information	NPS, bulletin case located on vault toilet wall, on state land
Bath Rock	Climbing Information	NPS, located beside entrance fee station, bulletin case, on state land
Bath Rock	Information	NPS, located beside entrance fee station, bulletin case, on state land
Bath Rock	Orientation/Information	NPS, located beside entrance fee station, bulletin case, on state land
Morning Glory Viewpoint	Climbing Recreation	IDPR, but located on federal lands (Reserve), low-profile
Bread Loaves	Orientation/Information	NPS, bulletin case located on vault toilet wall
Stines Creek Picnic Area	Orientation/Information	IDPR, kiosk, includes comment register
Tiny Town	Prehistory/archeology	IDPR, Castle Rock/Stines Creek Area, low-profile

Another important development in the Reserve's interpretive planning was the completion of the draft foundation document in January 2007. This internal document included primary interpretive themes based on the Reserve's legislation, established purpose, significance, fundamental resources, and values. The draft document outlined six interpretive themes summarized by the following topics: (1) the historic California Trail, (2) outstanding scenery, (3) traditional western heritage, (4) dramatic geologic features and landscape, (5) geologic study, and (6) world-class rock climbing. The foundation document incorporated in this plan includes a seventh theme related to the topic of biogeographic crossroads (see "Chapter 2: Foundation for Planning and Management" in this draft GMP/EIS).

Interpretive Themes

Another important development in the Reserve's interpretive planning was the completion of the draft foundation document in January 2007. This internal document included primary interpretive themes based on the Reserve's legislation, established purpose, significance, fundamental resources, and values. Themes help staff articulate the important messages visitors should receive about the significance of the Reserve. The foundation document incorporated in this plan outlines seven interpretive themes summarized by the following topics: (1) the historic California Trail, (2) outstanding scenery, (3) traditional western heritage, (4) dramatic geologic features and landscape, (5) geologic study, (6) biogeographic crossroads, and (7) world-class rock climbing (see "Chapter 2: Foundation for Planning and Management" in this DGMP/EIS).

Regional Themes

While the Reserve is the best site to experience the California Trail in Idaho, other agency sites also expand on this theme.

City of Rocks Back Country Byway

Located within the jurisdiction of the Bureau of Land Management, south of the Almo-Elba divide, is a City of Rocks Back Country Byway exhibit that interprets the scene along the historic California Trail. Text of the exhibit includes a journal quote describing the Jim Sage Mountains, Raft River Valley and Mountains, Albion Mountains, Castle Rocks, and City of Rocks. Nearby trail ruts and swales remain intact.

Byway interpretive signs at Albion, Conner Junction, and Almo also include the regional themes of the California Trail, the western rural setting, and modern-day recreational opportunities. Additional regional themes include the stories of the Shoshone and Bannock peoples, the sheep and cattle wars (especially the notorious outlaw Diamondfield Jack), early Cassia County and Mormon settlement, reclamation of the Snake River Plain at the turn of the 19th century, and archeological sites that suggest some of the earliest occupations of what is now Idaho.

Regional providers of interpretation include the Cassia County Historical Society and Museum in Burley, Minidoka County Historical Society Museum in Rupert, Albion Museum (Normal School), U.S. Forest Service wayside exhibits along the Howell Canyon Road to Mount Harrison, and the Oakley Museum. In addition to interpretive sites along the byway, other locations near the Reserve that interpret the California or Oregon Trail cultural landscapes are at Milner Recreation Area, Massacre Rocks State Park, Rock Creek Station, Hagerman Fossil Beds National Monument, and the National Oregon/California Trail Center at Montpelier.

Education and Outreach to Schools

Although not well documented, it is believed that school field trips to City of Rocks were commonplace prior to Reserve status. As early as 1991, professional staff probably began offering interpretive programs and educational materials to local schools such as Almo Elementary, as well as to middle school/junior high classes in Malta, Declo, and Burley. Most of these schools

continue the tradition of bringing science classes to the Reserve. In 2009, staff provided educational activities for 11 schools and 719 children. One of the more formal educational activities developed by Reserve staff was the program “Science on Snowshoes.” This program included the acquisition of 41 pairs of snowshoes to outfit schoolchildren and adult sponsors for winter hikes, and it included the publication of a workbook for the children. The project was funded by a 1999 grant from the National Park Foundation.

Junior Ranger Program

The Reserve’s Junior Ranger Program is modeled after the NPS program but is not technically a part of it. Staff have developed booklets, assignments, and a certificate that reflects the purpose and mission of both the National Park Service and the Idaho Department of Parks and Recreation. The program is designed for children ages 6–12. Candidates become Junior Rangers when they complete five of the six activities in the booklet and attend one of the interpretive presentations or Junior Ranger activities. Approximately 50–75 children graduate each year.

Formal Interpretive Presentations and Special Events

Formal interpretive presentations are visitor activities that are prepared, advertised, and presented by a staff member. According to the Reserve annual report, 1,850 visitors attended formal interpretive presentations at City of Rocks in 1991. In 2009, staff gave 582 presentations to 3,394 visitors. While campfire programs have been a century-long tradition in state and national parks and are often a favorite of families camping in the Reserve, these types of personal programs (along with guided walks) have not been well attended. Staff have learned that well-advertised and promoted special events are best attended.

Special events probably began with the annual equestrian trail ride that was first held in 1991 and the Dutch oven contest, also conducted that year. The number of special events had grown to 12 by 2010 and now includes winter

and summer day camps for kids, wildflower and birding weekends, summer and fall trail rides, climbing workshops, stargazing parties, snowshoe hikes, and more. In addition to advertised events, employees regularly offer Volunteer in Park tours and programs to groups on request. Occasionally interpretive presentations are given by guest speakers, such as Dr. Kevin Pogue, Professor of Geology at Whitman College.

Interpretive Publications and Internet

Nonpersonal media such as bulletin boards, wayside exhibits, publications, and websites have become the primary means of communicating the history and significance of the Reserve to visitors. In 2010, staff regularly maintained 15 park-specific brochures, 11 wayside exhibits, 9 bulletin boards, and 2 official websites. Unfortunately, it has not been possible to calculate the number of people reached through these media. Staff annually distribute more than 12,400 of the Reserve’s official park brochure. Other publications include *Reserve Camping*, *Castle Rocks Camping*, *Top Highlights*, *City of Rocks Trails*, *Castle Rocks Trails*, *Trail Guide: Creekside Towers*, *Wildlife Checklist*, *Bird Checklist*, *Checklist of 100 Common and Showy Wildflowers*, *Checklist of Trees, Shrubs and Vines*, *Castle Rocks Ranch Unit*, *Junior Ranger Activity Guide*, *Climbing Experience Program*, and *Smoky Mountain Yurts*.

Educational Institutions and Commercial Guides

Although most interpretive and educational opportunities are provided by park staff and volunteers, other organizations take advantage of the academic resources of the Reserve. For many years, the Geology Department of Whitman College has used City of Rocks and Castle Rocks to teach about granite morphology and orogeny. City of Rocks has been the destination of many university-level geology field schools and, more recently, archeological field schools. Other organizations use the Reserve each year for instruction. These include the National Outdoor Leadership School, the

Boy Scouts of America, Girl Scouts U.S.A., and college recreation programs, hosted by institutions such as Idaho State University.

Both students and professors have conducted research on the biological, geological, and historical aspects of the Reserve. Some research has led to commercial publications, such as *Etched in Stone: The Geology of City of Rocks National Reserve and Castle Rocks State Park* by Dr. Kevin Pogue. Dr. Lesley Morris conducted more than three years of research that led to the publication of *The Ecological History of the City of Rocks National Reserve*, which included “Part I: The Human Archive” and “Part II: The Biological Archive.”

Commercial guides and outfitters also tell the story of the Reserve as they provide guidance in rock climbing or horseback riding. The story and the setting become a part of the overall learning experience. Four commercial guides and outfitters operate annually within the Reserve: Exum Mountain Guides, Indian Grove Outfitters, Jackson Hole Guides, and Sawtooth Mountain Guides.

Park employees have also partnered with organizations such as the Sawtooth Science Institute, Montana Conservation Corps, the Access Fund, and the Oregon-California Trail Association to provide joint education and interpretive opportunities and publications. Similarly, the park participates each year in educating and supervising three Youth Conservation Corps members. These students, ages 15–18, are provided a thorough overview of the natural and cultural resources of the Reserve and the need to protect its significance in perpetuity.

The Reserve is periodically able to offer a park management internship, which seeks a junior or senior in college who is preparing to enter the park management profession. The student usually works 8–12 weeks and experiences every facet of park operation. Division chiefs shepherd the student through the daily routine of their program and often assign him or her to lead a specific project. Interns often find career

employment with the Idaho Department of Parks and Recreation, U.S. Forest Service, or another resource agency.

Interpretive Opportunities

As the Reserve’s visitors increase and their interests diversify, personal interpretive presentations are likely to become well-attended. A formal amphitheater proposed at Smoky Mountain Campground will provide the proper facility and means to reach additional audiences. Employees are planning to develop additional trail guide and activity brochures, as well as wayside exhibits. Future interpretive opportunities also include better use of current technologies and social media. The Reserve has yet to use many current technologies, including interpretive guides via cell phone or iPod. The Reserve has engaged the public through social media and has a current reach of several thousand members. (Reach is not the same as “likes” or “friends” but is defined by how many Facebook users are exposed to messages posted by the Reserve.) Visitor center exhibits are the most lacking and are currently located below the Reserve administrative offices on the first floor of a circa 1912 brick home. Only 196 square feet are available in the building to tell the Reserve’s story. A new visitor center that would accommodate this function has been proposed in the planning documents for both the Reserve and the state park. A new visitor center is needed that is specifically designed to accommodate large numbers of visitors or students circulating through exhibits, as well as seated in an auditorium, audio/visual room, or classroom.

VISITOR EXPERIENCE: VISITOR AND EMPLOYEE SAFETY

The safety of visitors, employees, and volunteers is a high priority for the Reserve. Risk and hazard awareness and prompt mitigation by Reserve personnel, combined with relatively low-risk recreational pursuits and regionally low crime rates have resulted in a low overall incident rate. Off-road vehicles are not

permitted on Reserve roads or trails. There are no opportunities for extreme mountain biking, and equestrian trails are relatively gentle. The primary recreation of rock climbing is practiced on relatively small rocks or solid rock, far from the avalanches, crevasses, or rockfall found in mountain climbing areas such as the Tetons, Denali, or Mt. Rainier. The Reserve does not have giant cliffs such as the ones encountered in Yosemite or Zion “big wall” climbing.

In the last decade, there have been two reported assaults, one case of graffiti, and very few reported thefts. Of the reported incidents, most involved either climbing or motor vehicle accidents.

Risk and Risk Management

Primary sources of risk to visitors of the Reserve include roads, climbing and other recreational activities, and fire. There are other potential sources of risk such as hunting, trapping, and criminal activity; however, no incidences have yet surfaced. The Reserve staff are proactive in the mitigation of these risks by replacing dangerous fixed climbing anchors, providing climbing safety education on kiosks, promptly reporting road hazards, and assisting with temporary road closures.

Reserve Staff

There are seven full-time rangers at the Reserve: two are Idaho Emergency Medical Technician-Basic (EMTBs) and the remainder have received training to the American Heart Association (AHA) Basic First Aid/CPR level. Seasonal employees have varying degrees of certification up to EMTB, but the minimum training level is AHA basic first aid and CPR, which is provided in-house. Park personnel are the first-line responders and possess more Reserve-specific technical rock rescue training than the entities listed below.

Almo Quick Response Unit

The Almo Quick Response Unit (QRU) is a group of local volunteers who provide emergency care up to the Idaho EMTB level. Currently the unit has 7 active participants, down from a one-time high of 13. In Idaho, a quick response unit is not a “transporting” agency, except for short transfers to helicopter landing zones or, rarely, rendezvous with ground ambulances. As volunteers, members of the quick response unit are not required to respond, nor does the unit have a schedule of duty per se, so the number of QRU EMTs responding may range from the full unit to one or none. Response times are usually faster than the paid services listed.

Life Run Ambulance

Life Run is based in Burley, Idaho, 43 miles north of the Reserve. They are a full-time, paid ambulance service and can provide care up to the Idaho EMT-Advanced (EMT-A) level. Response times vary depending on road conditions and the position of the ambulance personnel, but are no less than an hour.

Air Ambulance

Helicopter transport is available from Pocatello, Twin Falls, and Idaho Falls, Idaho, as well as various locations in Utah. All air ambulance transporters can provide services up to the Emergency Medical Technician-Paramedic (EMTP) level, and most are also staffed by registered nurses. The fastest response times are 45 minutes; however, the Twin Falls helicopter (Saint Luke’s) may be able to respond more quickly. They are relatively new and have not yet been dispatched to the Reserve in an actual emergency. Portneuf Life Flight, based in Pocatello, is the service most commonly dispatched by 911 to the Reserve area.

Search and Rescue

The Cassia County Sheriff’s Department has a search and rescue team with fairly extensive experience searching for lost snowmobilers; however, they have limited technical rock rescue capability. Neighboring Minidoka County’s East End Fire Department also has some very limited technical rescue capability.

Fire

The volunteer Almo Connor Elba Fire Protection District (ACE Fire) is paged in the event of a 911 fire emergency call, either structural or wildland. ACE Fire currently has eight active volunteers and is well-equipped to handle initial attack. BLM or USFS fire crews are dispatched based on determination by qualified ACE members. Reserve firefighting capabilities have fluctuated in the last decade, but current standard operating procedures assign Reserve staff to natural and cultural resource advisory roles, as well as visitor protection through communication, access control, or evacuation in the event of a wildfire incident.

Law Enforcement

IDPR Compliance Enforcement Officer Rangers have authority under the Idaho Administrative Procedures Act to write infraction citations for noncompliance with IDPR rules. The most common of these minor infractions are failure to pay fees, dogs off leash, and firewood gathering. The Cassia County Sheriff responds to any issue involving misdemeanor or above and has historically been responsive to requests from Reserve staff for assistance.

Communications

The Reserve is served by the Idaho Bureau of Homeland Security, which maintains a radio repeater atop Graham Peak, the highest point in the Reserve. Every ranger and most seasonal crew are equipped with or have access to handheld portable radios. The position of the repeater allows for almost complete coverage of the Reserve, with a patchy signal only occurring on the far southwest boundary. On numerous occasions Reserve staff have assisted the Idaho Bureau of Homeland Security with access and repairs of the repeater. Additionally, the Reserve EMTs and Base headquarters have 911 radios with which Cassia Sheriff, the Alma QRU, and Life Run ambulance can be reached directly. Cell phone coverage is evolving, with ever-improving service throughout the area.

VISITOR EXPERIENCE: SCENIC RESOURCES

Scenic Quality at City of Rocks

Scenic quality is an important resource at City of Rocks National Reserve. The National Park Service Organic Act and the enabling legislation for the Reserve call for the conservation and protection of scenic quality.

The City of Rocks landscape provided emigrants with awe-inspiring scenery and views. Today, these views remain unimpaired, allowing contemporary visitors the opportunity to experience a landscape similar to that experienced by emigrants more than 150 years ago while traveling along the California Trail. Naturally existing views and vistas of the City of Rocks were the hallmark of the California Trail experience through southern Idaho (Reserve 2008b).

Today, changes to the historic scene include the homestead ruins in Circle Creek Basin, dirt roads, juniper pole fences, and modestly located, basic recreational facilities. These newer additions to the landscape are minor intrusions within the context of the massive rock features and broad, open basins that define the character of the landscape. Today, through its enabling legislation and ongoing NPS management, the City of Rocks continues to convey its historic association with westward migration (Reserve 2008b).

Views Identified in the Comprehensive Management Plan

The 1996 final *City of Rocks National Reserve Comprehensive Management Plan, Development Concept Plan and Environmental Impact Statement* is guiding management decisions until a new general management plan is adopted. It was prepared by the National Park Service in cooperation with the Idaho Department of Parks and Recreation and local residents to formulate a comprehensive plan for the protection, preservation, and interpretation of the Reserve.

In addressing scenery, the comprehensive management plan recognized scenic quality as a value requiring protection through management. To emphasize the value of scenic quality in the landscapes, the comprehensive management plan called for restricting the introduction of modern features within historic viewsheds and managing scenes for more natural conditions.

Specifically, the comprehensive management plan provided for protecting the foreground views from the trail (a one-half mile corridor) from incompatible intrusions within the Reserve boundary.

The comprehensive management plan listed important views and viewsheds that warranted special attention—important because they were views historically experienced by travelers trying to find their way along the trail. In addition, because of the importance of landmarks and vistas to the visitors’ understanding and appreciation of the California Trail history, the comprehensive management plan encouraged the protection of historic views extending beyond the Reserve boundary.

The comprehensive management plan suggested that the National Park Service, the Idaho Department of Parks and Recreation, and Cassia County work in partnership with landowners in important viewshed areas to encourage complementary management. Such management would be consistent with design guidelines to perpetuate a historic rural setting compatible with the one existing inside the Reserve. To accomplish these protection measures, county zoning, acquisition of remaining development rights on an opportunity basis, cooperative management, and design that would include only nonstructural, modern-day ranching images are encouraged.

Scenic Resources and the City of Rocks National Reserve Foundation Document

The draft *City of Rocks National Reserve Foundation Document* (see chapter 2) is based on the Reserve’s enabling legislation and legislative intent. Preservation and protection of scenic qualities are clearly stated in the Reserve’s

purpose to “preserve and protect through cooperative efforts the scenic qualities and attributes of the California Trail landscape, rural setting, and granite features, while interpreting its values and managing recreation.”

Scenery is among the fundamental resources and values identified as significant in the foundation document: “The Reserve has a timeless natural quality and protects and preserves outstanding scenery set among sculpted granite monoliths framed by the Albion and surrounding mountains.”

A primary interpretive theme developed specifically for scenery states, “[t]he timeless scenery of City of Rocks National Reserve is broad and expansive yet accessible and personal. People develop a personal relationship with this landscape as evidenced by pioneer journals and comments from modern-day visitors” (Reserve 2007).

External Threats to Views

Over the past few years, Reserve staff have worked to re-establish the historic character of the cultural landscape within the Reserve by removing contemporary features such as above-ground power lines and fences no longer needed for cattle control. These actions have had positive effects on the historic scene. Recently, several projects were initiated adjacent to the Reserve that would impact important historical and contemporary views from within the Reserve. These projects include the potential location of transmission lines, wind turbine farms, and cell phone towers. During public scoping, the public expressed concern regarding energy-related development projects and their potential impacts on views and historic viewsheds. Though these projects are proposed outside of the Reserve boundary, this type of development could adversely impact the visitor experience of the California Trail inside the Reserve.

Scenic Viewpoints

Through Public Law 100-696, Congress directed the Secretary of the Interior “to protect and maintain scenic quality...” at City of Rocks (see

the City of Rocks National Reserve legislation in “Appendix A: Reserve Legislation”). “What is scenic?” is a legitimate question. The answer might be “you know it when you see it.” One cannot know the emotions that were evoked when the very first humans encountered these stark and contrasting landforms. However it is known what many of the later, California-bound emigrants were thinking and feeling when they experienced what James F. Wilkins first called *City of Rocks* in 1849: their journal accounts are filled with such descriptions.

A suitability/feasibility study was conducted by the National Park Service in 1973 for a proposed City of Rocks National Monument, and it described the feel and scenery in these terms:

Although present use has considerably changed the regional landscape since the days of covered wagons, vast open plains and unusual geologic formations still exist in the City of Rocks area. The contrast of the beautiful mountain formations and the flat, arid Raft River Plains produces the same effect on people – whether they be pioneers traveling by covered wagon in the 1840s–60s or tourists crossing southern Idaho in the 20th century. The visual impact of the scenery remains: as one crosses the flat, monotonous sagebrush grazing-range, there is the sudden, startling contrast of those amazing rocks on the horizon, clustered in a city-like formation.

As the traveler approaches the “city,” clumps of small trees, mostly quaking aspen, mountain mahogany, common juniper, and pinyon pine – come into view, scattered among the rocks; the slopes of the surrounding mountains can be seen, protected by a stand of pinyon pine, which, although somewhat sparse, creates the illusion of a deep forest. As one draws closer, there is a silent hush in this empty “city”...a peacefulness...a quiet sense of security. (NPS 1973)

Shapes, colors, and textures of both the rocks and the layers of landscape behind them affect visitors who first encounter them. Feelings of surprise, whimsy, sacredness, or mystery are evoked. People like what they see and feel and know that these landscapes are worth perpetuating and protecting for future generations.

How to protect and manage these scenic resources is yet another question and one which the general management plan attempts to answer. Isn’t everything in the Reserve scenic? What are the important viewpoints that facilitate this experience and what does one observe there?

Because the majority of visitors arrive and experience the Reserve by automobile, and because county roads now closely follow the California National Historic Trail, 17 viewpoints have been identified as important to the visitor experience (“Figure 23. Scenic Viewpoints”). Viewpoints are described from east to west, as the 19th-century emigrant encountered them and the 21st-century visitor is most likely to encounter them today.

#1 – Smoky Mountain Drive

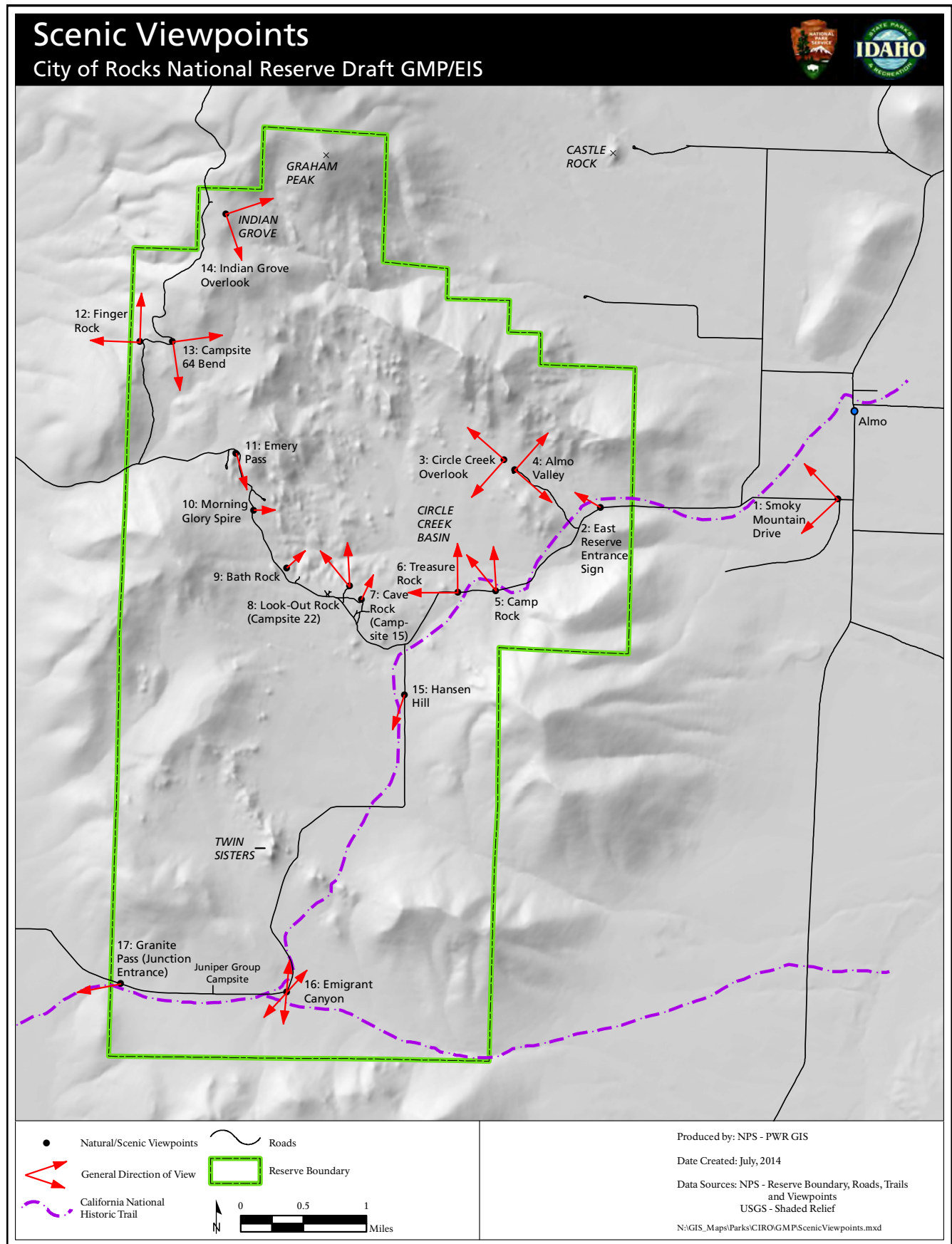
This view of the east side of the Reserve is best near the entrance station of Smoky Mountain Campground at 729 East Smoky Mountain Drive. Although the viewpoint is located outside the Reserve boundary, it is situated at the future proposed site of the visitor center. The view is generally west, but includes the sweeping view of Smoky Mountain (left), small hills separated by Circle Creek and City of Rocks Road (center), Greene Mountain, Graham Peak, Castle Rocks, and Cache Peak (right). This is the view the emigrants experienced as they began the gradual ascent into the Albion Mountains and City of Rocks. The following are quotes from emigrant trail diaries:

“...from there the road turns up a ravine between two high mountains, passing through Castle City (or Steeple Rocks) [City of Rocks].” Thomas Christy; July 1, 1850.

“To this Granite City seems to be but two out lets, a narrow gorge where we entered, and a wider space where we made our exite.” Dr. John Hudson Wayman; July 12, 1852.

“Two miles farther come to a narrow way which they call a pass.” Helen Carpenter; August 18, 1857.

FIGURE 23. SCENIC VIEWPOINTS



Today, the view features the transition from sagebrush steppe to pinyon-juniper forest to exposed granite monoliths and finally to the often snow-covered alpine slopes of Graham Peak and Cache Peak. Only a few manmade structures are observed, including an abandoned house and barn directly west, and a modern house and barn to the west-northwest. This view is partially protected by Cassia County's Historic Preservation Zone.

#2 – East Reserve Entrance Sign

The view west-northwest from the Reserve's east entrance sign is the visitor's first stunning view of the granite spires. Here the visitor is a few hundred yards inside the boundary and parked off to the right side of the road. Granite Peak, Steinfells Dome, and Greene Mountain rise up dramatically and are up close and personal. The hills are sparsely covered with juniper, pinyon, and mountain mahogany, and the foreground view is primarily sagebrush and bitterbrush. The scene often looks parched and rugged, with the reddish-gray granites of the Green Creek Complex dominating the prospect. Off in the distant western view, the high granite fins of the Almo Pluton are visible, including the feature known as Shangri La. The hills south of Indian Grove are also visible. Immediately north of the pullout was an old borrow pit that was reclaimed to blend with the natural topography and vegetation in 2004. That project greatly enhanced the view from this location, as well as viewpoint #5.

#3 – Circle Creek Overlook

Veering right, from the City of Rocks Road, many visitors will take the steep, narrow road to the saddle-gap just below Steinfells Dome. A new parking lot stops short of the actual view, and visitors must take a short walk to the top of the saddle to peer into the City of Rocks and Circle Creek Basin. This is easily a 180-degree view, beginning with the rugged yet lower pinnacles directly to the south and leading to the far views of the Basin, including Kaiser's Helmet, Treasure Rock, Devil's Bedstead, Register Rock, Pinnacle Pass, and Twin Sisters, nearly 3 miles away. The California National Historic Trail is visible for approximately 2

miles. Further to the southwest one can see the Cedar Hills that make up the southern Albion Mountains and even Goose Creek Mountains more than 10 miles away. Southwest to west, one can see the white monoliths of the rim, such as Elephant Rock, Look-Out Rock, and Bath Rock. The view west-northwest includes the Inner City and formations such as Lost Arrow Spire, the Clam Shells, and Stripe Rock. Mahogany Mountain and Eric Wood formation are on the skyline. From this vantage point, neither Graham Peak nor Cache Peak is visible, and so the eye focuses mainly on the white pinnacles of the Almo Pluton. Many visitors, however, come to this point to climb Steinfells Dome, directly to the north. It is immediately within view and stands magnificently above the parking area. Often climbers on the dome and the adjacent Jackson's Thumb are visible from the parking area and offer a human interaction with the grand scene not experienced at most other viewpoints. This viewpoint was probably not visited by emigrants of the California Trail.

#4 – Almo Valley

The Circle Creek overlook parking area offers a vast view to the east. This view includes the spacious Almo Valley, the southern end of the Jim Sage Mountains, and the Black Pine Mountains. The southeast perspective offers a grand view of the Raft River Mountains. Greene Mountain (elevation 6,821) on the left (north) and Smoky Mountain (elevation 7,580 feet) on the right (south) frame the viewpoint. On a clear day, the view east extends more than 90 miles to the Wellsville Mountains and offers one of the most distant views from the Reserve's road system. The view affords the opportunity to experience Basin and Range topography. This viewpoint was probably not visited by emigrants of the California Trail.

#5 – Camp Rock

The first good opportunity to view the granite spires up close and personal is at Camp Rock. Just before reaching the Camp Rock turnout, the visitor naturally looks north and northwest to enjoy the high ridge of Granite Peak and Steinfells Dome, with Graham Peak looming in the distance. The perspective also offers a look

directly into the heart of Circle Creek Basin. The immediate foreground is the wide basin that gently slopes to Circle Creek, which runs west to east, dissecting the meadows of a private ranch. The land gently rises again until it meets the base of the 7,689-foot Granite Peak. As the visitor reaches the Camp Rock turnout, the eye looks west. On the left is the giant monolith, Camp Rock, and to the right is Chicken Rock. The sky looms large behind Chicken Rock and is often photographed by visitors trying to capture the intimate feel of the pinnacles. Although not a competitor for the previously mentioned views, the short walk to the emigrant signatures of Camp Rock also affords the visitor a wonderful view of Smoky Mountain to the south-southeast. Emigrants described this scene as follows:

"... we passed through a stone village composed of huge, isolated rocks of various and singular shapes, some resembling cottages, others steeples and domes. It is called the "City of Rocks," but I think the name "Pyramid City" more suitable. It is a sublime strange, and wonderful scene—one of nature's most interesting works." Margaret A. Fink; July 17, 1850.

"The road here lies between high & immense rocky mountains, with not a particle of herbage or vegetation upon them, but being white & smooth upon their surface. Just opposite to where we encamped was one which struck us as particularly curious. It was a perfect face upon the highest cliff around. . . . The road continued between these & around these rocky piles but the road itself was good. You can imagine among these massive piles, church domes, spires, pyramids, &c., & in fact, with a little fancying you can see [anything] from the Capitol at Washington to a lowly thatched cottage." Vincent Geiger and Wakeman Bryarly diary; July 19, 1849.

Passed some beautiful scenery, high cliffs of rocks resembling old ruins or dilapidated buildings. Sallie Hester; August 3, 1849.

"The Grey Granite Rocks stand in pyramid, mountain & dome forms, here & there towering aloft. The road winds along between them. Emigrants names are written with tar-keel & on these curious structures. Here was truly manifested

in a temporial point, the figures used in the Scriptures like unto the Shadow of a great rock in a weary land. The shadow was cool—inviting and brought to mind the Spiritus 1 illustration—of the figure—the Scenery was grand & the concave rocks at the narrow pass was quite a curiosity." Augustus Burbank diary; August 4, 1849.

"We encamped at the city of the rocks, a noted place from the granite rocks rising abruptly out of the ground. They are in a romantic valley clustered together which gives them the appearance of a city. I took several sketches of them." James F. Wilkins diary; August 13, 1849.

"we entered a very extraordinary valley, called the 'City of Castles.' A couple of miles long, and probably 1/2 mile broad. A light grey decrepitating granite, (probably altered by fire) in blocks of every size, from that of a barrel to the dimensions of a large dwelling house; groups, Masses on Masses, and Cliffs; and worn, by the action of ages of elementary affluences, into strange and romantic forms.—The travellers had marked several large blocks, as their fancy dictated the resemblance to houses, castles, &c.—On one was marked (with tar) "NAPOLEON'S CASTLE," another "CITY HOTEL," &c. We nooned among these curious monuments of nature . . . I explored and sketched some of these queer rocks. A group, on left of the trail, resembled gigantic fungii, petrified, other clusters were worn in cells and caverns; and one, which contrasted with the size and h[e]ight of the adjacent rocks, seemed no larger than a big chest, was, to my astonishment, when close to it, quite large, hollow, with an arch'd entrance, and capable of containing a dozen persons. This, from its peculiar shape, I named the "Sarcophagus Rock." J. Goldsborough Bruff; August 29, 1849.

"These [City of Rocks] are a curiosity worth the travelers notice, having the appearance [of] decayed castels and lofty steeples . . ." Thomas Christy; July 1, 1850.

"Passed some high isolated granate hills or peaks, many of them single rocks standing in the valley, many of them rising from a level plain an hundred or more feet. They are in curious shapes resembling spires, towers, forts, &c." Byron McKinstry diary; August 3, 1850.

"There is a very large rock on the left, close to the road, that I named Temple or Recorder's Rock. Here, upon its base, is recorded many an emigrant's name. This rock may be one hundred and twenty feet high and runs up nearly perpendicularly. A little farther and on the right is another with a small prong sticking up on its top that appears a little like a cupola. I might give names to many of these monuments of Nature but they are too numerous." Cyrus C. Loveland diary; August 7, 1850.

"Camped at Steeple or Castle Rocks here is a sublime scenery to the Romantic the Rocks resemble an old City of Ruins there are thousands of names here I registered Mine on a large Rock which we named the Castle Rock hotel." Richard Augustus Keen diary; June 22, 1852.

"... a romantic place called City of rocks—the Mountains tower with sharp peaks, mostly of a sugar loaf shape ... " Jay Green diary; June 25, 1852.

"... encamped in Granite City one of the finest natural places of its kind in the World, I banter the World to beat it This City is Walled in on every side with towering Granite mountains some peaks shooting athwart the sky like towering domes. While hundreds of piles, peaks, steeples & domes of all shapes possible in the distance looking like an old dilapidated City. In a south Eastern direction may be seen a large mountain made up of Mica schist This after noon we passed through a most beautiful basin surrounded with fine mountains." Dr. John Hudson Wayman diary; July 12, 1852.

"... we entered Pyramid Circle. This is one of the greatest curiosities on the road. In some places a pillar rises to a height of one hundred and fifty feet, with smaller ones piled on the top and sides, looking as though a breath of air would hurl them down. These pyramids are of various colors. The sides have been washed by the rains in all manner of fantastic shapes, giving the place a most romantic and picturesque appearance. The circle is five miles long and three miles wide, level within the wall around and entirely surrounded by these pyramids or cliffs..." Elizabeth Ann McAuley; August 9, 1852.

"... Pyramid Circle, a delightful place indeed and one which requires the pen of the poet or the pencil of a painter to portray its beauties. It is a perfectly level plain, surrounded by mountains which are covered with pine and cedar trees and studded throughout with numerous tall white and green stones from sixty to one hundred and fifty feet and from ten to twenty feet in diameter at the base. As we view it this eve, the full moon shining upon it, our camp fires blazing near and striving, with their lurid light, to vie with the silvery moon in brightness. Our tents and wagons grouped together and a merry party tripping the light fantastic toe upon the green, whose cheerful, happy voices echo from the hills around us, presents a scene altogether picturesque and novel." Harriet Sherrill Ward; August 19, 1853.

"Passed through Pyramid Circle. The Pyramids resemble more than anything else petrified hay stacks." Rachael Taylor; August 26, 1853.

"... we encamped near the so-called Monumental rocks. They are a cluster of rocks forming a sort of semi-circle. They rise to a great height and are of a light grey color and look like the ruins of some enormous structure. They are situated in an amphitheater of mountains, with snow capped summits. The rocks themselves rise out of a little plain covered with velvet sod. A small stream issues from their base and glitters along down the valley. A sort of thin mist hangs in the air, giving a dreamy appearance to the whole scene. . . All afternoon we traveled along the same valley among rocks of the most singular shapes, some rising to great heights like the spires of churches, others of a more tower like appearance." William Woodham diary; June 22, 1854.

"... we came into what is known as Pyramid Circle. There was perhaps an acre of partially level and with a good sized stream flowing through it. On this level, and the hills which encircled it, were the most beautiful and wonderful white rocks that we ever saw. This known as the City rocks and certain bears a striking resemblance to a city. To be sure it was a good deal out of the usual, for the large and small houses were curiously intermingled and set at all angles, but it only made the place more charming. There was everything one could imagine from a dog house to a church

and courthouse. While the stock was being cared for the women and children wandered off to enjoy the sights of the city.” Helen Carpenter; August 18, 1857.

“... came to Steeple rocks. Which are large while curiously shaped rocks scattered over a surface of several acres. Some of them run up to a point like the steeple of a church...” James Berry Brown diary August 21, 1859.

#6 – Treasure Rock

Heading west, and just prior to reaching Treasure Rock turn-out, the visitor enjoys the shapely form of Kaiser’s Helmet on the left (south) and Treasure Rock on the right (north). However, once the traveler reaches the turn-out, their eyes focus again on the northern view into the Inner City. Now closer to the City than any previous viewpoint, one can begin to identify other named pinnacles such as Look-Out Rock, Box Top, Lost Arrow Spire, the Dolphin, and Strip Rock. The eye is drawn further into the rugged country of the North Fork Circle Creek drainage, and then finally to the 8,867-foot summit of Graham Peak. A wayside exhibit interprets the view as seen by passing California-bound emigrants. The southern view from this point also affords a nice silhouette of Devil’s Bedstead (Saddle Rock). The western skyline features Mahogany Mountain.

#7 – Cave Rock (Campsite 15)

One of the best but least known views into the Inner City can be experienced from the parking lot of campsite 15, also known as the Cave Rock site. Here, the visitor is near the rim and experiences unobstructed views of the pinnacles from the first elevated opportunity. The scene beyond includes the east-west ridge of Granite Peak and Steinfells Dome, and finally Graham Peak, the most dominant feature. Usually the parking area is filled with vehicles associated with campsites 15 and 16, and most travelers are focused on driving the sharp turn to the left. This viewpoint was probably not visited by emigrants of the California Trail.

#8 – Look-Out Rock (Campsite 22)

Arguably the best viewpoint in the park is from the rim directly south of Look-Out Rock. From campsite 22, a ridge of granite leads north to the monolith known as Look-Out Rock, which obstructs a direct northern view; however the views left and right of the rock are spectacular. Left or northwest, one immediately peers deep into the Inner City. Granite fins and ridges run north and south until sliced by the erosive power of South Fork Circle Creek. In summer the white granite is contrasted with the light green foliage of aspen, which in fall offers spectacular shades of gold. It is difficult for the visitor to take a poor picture here! Right of Look-Out Rock, one gazes across more granite fins to the ridge of Granite Peak and Steinfells Dome. While this is one of the best views, the public access to this point is obscure and conflicts with the use of campsite 22. This viewpoint was probably not visited by emigrants of the California Trail.

#9 – Bath Rock

Most visitors to City of Rocks will pass by or stop at the Bath Rock parking area to pay fees, camp, use the restroom, climb Bath Rock, or hike the Creekside Towers Trail. Bath Rock dominates the attention of the visitor, but a short walk east of the parking area towards campsites 42–43 leads to the rim and unobstructed views. The foreground includes more of the granite fins of the Almo Pluton, and the background includes Graham Peak, Cache Peak, Granite Peak, and Steinfells Dome. The advantage of this viewpoint is that it includes a comfortable separation between the parking area and the rim, and the viewpoint can be made accessible to most visitors. This viewpoint was probably not visited by emigrants of the California Trail.

#10 – Morning Glory Spire

Along City of Rocks Road, between campsites 51 and 52, the visitor will encounter a small pullout on the right (east). The view east offers Parking Lot Rock, Morning Glory Spire, Anteater, and Creekside Towers. The distant view continues from Granite Peak to Green Mountain, and beyond this to Almo Valley, Jim Sage Mountains, and finally to the Black Pine Mountains more

than 30 miles away. This viewpoint is also a popular location to see and photograph climbers, especially on Morning Glory Spire, which features the aptly named route “Skyline.” This viewpoint was probably not visited by emigrants of the California Trail.

#11 – Emery Pass

From the Emery Pass Picnic Area, visitors can enjoy the distant vista south, which includes Owl Rock in the foreground and distant views of Twin Sisters, Pinnacle Pass, Cedar Hills, and Raft River Mountains. This is often the first, best view of City of Rocks that travelers from Oakley experience. This viewpoint was probably not visited by emigrants of the California Trail.

#12 – Finger Rock

The best view of Oakley Valley and the Snake River Plain from the Reserve is encountered at Finger Rock (campsite 63). The view is the attraction for campers at this site. On clear days one is likely to see 110 miles north to the Soldier and Pioneer Mountains. The viewpoint also includes Middle Mountain directly west of the Birch Creek Valley, and Finger Rock, which is a granite spire of the Almo Pluton a few hundred yards to the northeast. This viewpoint was probably not visited by emigrants of the California Trail.

#13 – Campsite 64 Bend

Less than a quarter mile from Finger Rock, Logger Springs Road makes a sharp switchback. At this bend one is probably watching the road, but if one pulls over to the shoulder, they will experience a fantastic view of Granite Peak, the Eric Wood formation, Taylor Spring Basin, Smoky Mountain, Raft River Mountains and upper Raft River Basin, Cedar Hills, Bread Loaves, Mahogany Mountain, and Middle Mountain. The view also provides a vantage to compare different forest types, including aspen, mountain mahogany, pinyon-juniper, as well as sagebrush steppe and high meadows. This viewpoint was probably not visited by emigrants of the California Trail.

#14 – Indian Grove Overlook

Few visitors ever experience Indian Grove Overlook due to the steep and rugged Logger Springs Road that one must travel to reach the pullout. A fence and gate are encountered on the right (east), just a few hundred yards from the USFS boundary. The view requires a 200-yard walk east to the cliff overlooking subalpine fir and the aspen woodland called Indian Grove. From this vantage point, one experiences a vast panorama that begins with Graham Peak to the northeast and continues to the Graham Creek drainage, the village of Almo, Raft River Mountains, Black Pine Mountains, Granite Mountain, and Smoky Mountain. Closer in view, but still a few miles away, one can see a mile of the California Trail, including Camp Rock and Treasure Rock. Although this viewpoint was probably not visited by emigrants of the California Trail, Indian Grove derives its name from the popular belief that Native Americans associated with the Shoshone and Bannock Tribes observed passing emigrant wagon trains from this location.

#15 – Hansen Hill

This viewpoint is once again along the California Trail (Twin Sisters Road) and is nearly the same scene experienced by emigrants leaving Register Rock and reaching the highpoint that divides Circle Creek Basin from Heath Canyon. A wayside exhibit is placed here to interpret the view emigrants observed as they traveled toward Pinnacle Pass. Trail emigrant Cyrus C. Loveland described Pinnacle Pass in his diary entry of August 7, 1850: “*Echo Gap [Pinnacle Pass] is fifteen or twenty feet wide, with perpendicular rocks on each side from fifty to one hundred and fifty high, and receives its name from having the loudest echo that I have ever heard.*” Twin Sisters is prominently displayed to the southwest. On the far southwest horizon is the long ridge of the Goose Creek Mountains. The Cedar Hills are directly south, and Smoky Mountain dominates the left or eastern view. Although not the focus of the viewpoint, the northerly view into City of Rocks is also quite nice, making this one of the better 360-degree viewpoints. Cache Peak (elevation 10,339 feet) is visible just above the Granite Mountain ridge.

#16 – Emigrant Canyon

The junction of the main California Trail and the Salt Lake Alternate is located at the top of Emigrant Canyon. Two interpretive wayside exhibits direct the visitor's attention to Twin Sisters and the former site of the City of Rocks stage station (not in view). Twin Sisters stands directly north and is viewed from the angle at which it was first seen when it was named by Addison Pratt on September 15, 1848, as he traveled with the Mormon Battalion from California to Salt Lake City. Graham Peak and Smoky Mountain are within view. Pinnacle Pass (south side) is well within view, as are the Cedar Hills (both northeast and south). The traveler can look east down Emigrant Canyon, across the Upper Raft River Valley and to the distant Raft River Mountains. The view west offers the north-south ridges of the Goose Creek Mountains, Granite Pass, and Middle Mountain.

#17 – Granite Pass (Junction Entrance)

Just inside the Reserve boundary at the southwest corner known as Junction Entrance is Granite Pass viewpoint. An interpretive exhibit is located here and illustrates how the scene would have appeared with emigrant wagon trains making their way across the wide Junction Valley. Granite Pass was the highest point on the California Trail until emigrants later reached the Sierra Nevada Mountains. The scene today is much like it was when emigrants first encountered it. By the 1880s, homesteads were beginning to be established, as well as the community of Moulton. Today a quarry yard with modern housing and a few log structures from the late 19th century can be seen from the park boundary. From the wayside exhibit viewpoint, the modern elements are screened by the low, unnamed hill to the left (south). Granite Pass is nestled between Middle Mountain to the right (west-northwest) and the Goose Creek Mountains to the left (west-southwest). This scene is considered one of the most important cultural landscape viewpoints of the Reserve. Granite Pass is also designated a high-value site along the California National Historic Trail but is threatened by proposed transmission lines and wind turbines.

PARK OPERATIONS AND PARTNERSHIPS

Park Operations

Business Plan

The enabling legislation establishing the Reserve dictated local management and administration of federal lands. This partnership with the National Park Service also created significant business advantages. These advantages have been defined by the cooperative agreement, the operation plan and guidelines for management, and most recently by a comprehensive business plan.

Over the last 20 years, the partner agencies have developed best management practices. In 2009, the Reserve was selected as one of six NPS units to develop a business plan that would examine historical trends, current operations, projected financial outlook, comparative performance, and management priorities. The final plan was published in April 2010.

Five-year goals for park operations were developed during the planning process, and the business plan outlines the implementation of these goals. Several actions were identified to address parkwide priorities, generate additional revenue, and better leverage available resources. A few of those actions included the development and marketing of yurts at Smoky Mountain Campground and strategies to increase volunteerism through targeted recruiting efforts and increased visitor donations.

Facilities

Facilities are man-made features that provide visitors with better opportunities for access and enjoyment and aid in the protection of resources. They include roads and parking areas, trails, fences and gates, campgrounds and associated amenities (such as grills and tables), vault toilets, waste management receptacles, signs and exhibits, utilities (such as water and electricity), and impoundments. Each of these topics is discussed below.

Most facilities at City of Rocks are maintained by a chief of maintenance and a seasonal crew of 8 to 10 employees. Trails and trail signs are maintained by the climbing ranger, a seasonal trails crew of 2 employees, and a contracted public land corps crew of 8 or more. Fences and gates are maintained by the park ranger for resource management and a seasonal crew of 2. Compared to most national park units of similar size, operation, and visitation, the Reserve has fewer facilities. This is primarily because the park's supporting facilities—including the visitor center, maintenance shop, and a 2-unit employee housing structure—are located in Castle Rocks State Park's Administrative Unit. These facilities are owned and operated by the Idaho Department of Parks and Recreation, but because these facilities are integral to the function and success of the Reserve, they are also discussed in this section.

Administrative Unit

The Administrative Unit (12 acres) is located at the south end of Almo and includes the Reserve visitor center, parking and picnic areas, wagon exhibit, administrative offices, two employee residences, a maintenance compound with conference/training room, and a storage yard. An official remote automated weather station is also located on the property. Four campsites for volunteers and employees are also provided. About four acres are undeveloped; the remaining eight acres are devoted to developed facilities or managed landscape. NPS computer and phone systems are located in this unit. In addition, NPS-owned heavy equipment and other property are also stationed here.

Visitor Center

The visitor center is located in a 1912 brick house and includes two rooms of maps, books, and apparel (resale), as well as a small program area for viewing the park's orientation film and exhibits. As discussed in the "Interpretation and Education" section, the current visitor center is not designed to accommodate large numbers of visitors, and the Reserve would benefit from additional space for exhibits, audio-visual presentations, and classrooms. The visitor center building also includes administrative offices upstairs. These offices are currently at capacity.

Employee Housing

As mentioned above, the Administrative Unit provides two on-site employee residences. Employees who are not housed in these residences, including both seasonal and year-round employees, rely on finding housing in Almo or other surrounding communities. This can be challenging due to limited nearby housing availability.

Roads, Parking Areas, and Associated Structures

The Reserve contains 17.98 miles of named roads (park jurisdictional). Of these, 9.9 miles are under the jurisdiction of Cassia County, and 8.08 miles are under the jurisdiction of the Reserve. The primary recreational access roads are City of Rocks Road (the designated route of the City of Rocks Back Country Byway), Twin Sisters Road (generally the route of the California National Historic Trail), Circle Creek Overlook Road, and Logger Springs Road. Spur and loop roads branching from these provide access to campgrounds and trailheads.

Most roads are surfaced with screened or crushed quartzite gravel from county-leased BLM quarries near the upper Raft River. In some places the road surface is completely natural and consists of either grussic sand or compacted soil. There are no asphalt or concrete roads within the Reserve. Approximately eight miles of roads are coated with a magnesium chloride solution to reduce airborne particulates during hot, dry months. Generally, public road surfaces are 16–25 feet wide, with an additional impacted area of up to 10 feet for drainage ditches and slopes.

Managing stormwater runoff and snow melt is a difficult challenge. If water leaves the road too quickly, erosion of the surface material into creeks and intermittent streams occurs. If water remains on the road for extended periods, severe rutting occurs. Disintegrating granite is a substrate that does not lend itself well to control of water movement via standard road design and engineering practices. More than 34 culverts have been installed to manage runoff. Maintenance of roads remains one of the greatest operational expenses.

Ownership of the roads varies from fee title (both private and government) to rights-of-way (purchased or deeded), to Revised Statute 2477 claims. RS2477 is the granted right-of-way for the construction of highways across public lands not otherwise reserved for public purposes (1866). It was repealed in 1976, but prior roads were grandfathered in.

Roads within the jurisdiction of the National Park Service are maintained by Reserve staff on a cyclic schedule. Maintenance includes grading, cleaning culverts, and resurfacing with screened gravel from a local source outside the Reserve. The Reserve owns and operates a grader, backhoe, loader, skid steer loader, and dump truck. At times special use equipment is required, and the Reserve contracts or rents items as needed and as specified in special projects.

Parking areas include Circle Creek Overlook, Elephant Rock, Flaming Rock, Bath Rock, Parking Lot Rock, Emery Pass, Bread Loaves, and Twin Sisters. Vehicle pullouts along the road system include East Entrance, Camp Rock, Treasure Rock, Register Rock, Emigrant Canyon, Juniper, Junction Entrance, Finger Rock, Bread Loaves (east side), Owl Rock, King on the Throne, and Morning Glory Spire viewpoint. Most other areas for parking are associated with campsites.

There are three cattle guards within the Reserve on public land located at Emery Pass, Emery Canyon Entrance, and on Logger Springs Road. This last one is maintained by Reserve staff. There are no vehicle bridges within the Reserve.

Outside the Reserve, the City of Rocks Back Country Byway creates a 49-mile “necklace” around the Albion Mountain Range, traversing historically significant landscapes that still portray rural western heritage. The byway parallels parts of the original California Trail and the Kelton-Boise Stage Route. The byway leads travelers to and through City of Rocks National Reserve. Along the way, byway visitors see firsthand the workings of traditional cattle ranches and get a feel for the wide open spaces that appear much as they did 100 years ago.

Trails

Other than roads, trails are the most popular and most used facility because climbing areas are accessed by trails. More than 25 miles of trails are maintained by staff, including approximately 18 miles of primary designated trails, though many more miles of social trails exist, as visitors explore the granite spires and fins of the Upper Circle Creek Basin known as the “Inner City.” An interim trail plan was developed in 1997, but no official and final trail management plan has been developed. New trails are subject to environmental impact analysis and are therefore rarely developed.

Since 1996 the Montana Conservation Corps has provided supplemental trail maintenance on an annual basis. The Reserve’s climbing ranger and base-funded trail crew maintain trails regularly. Approximately \$37,000 in labor and materials are expended each year on trails for the Reserve and at Castle Rocks State Park. Most trails are one to two feet wide and may include check-dams, rills, stone steps and walls, bridges, and drainage ditches. Locally sourced material is often used in construction and includes granite or quartzite boulders, fill dirt from juniper posts, or commercially milled and debarked posts.

Of the 25 miles of trails, 5.53 are designated foot-traffic only. Another 10.4 miles allow bikes, and 13.7 miles include equestrian use. These designations are provided to the public on the official 2010 Reserve trail map, and on some signs at trailheads. Because the Inner City can be difficult to navigate, trail signage is critical to the system. Approximately 300 signs are placed at trailheads or along trails within the Reserve. Signs consist of routed letters painted white on brown-painted fir lumber. Posts are 4x4 cedar or pressure-treated fir.

There are no designated off-road vehicle (ATV, UTV, or motorbike) trails in the Reserve. Properly licensed, these types of vehicles are permitted on county roads through the Reserve as provided for in Idaho law and in the absence of a county ordinance prohibiting them. Although these types of vehicles are often the source of noise and cause conflict with other

Reserve users, they cannot be prohibited by the National Park Service on non-NPS jurisdictional roads. Excessively loud vehicles of any type are prohibited by Cassia County Ordinance 91-10-1, 10-15-1991, 7-1-3. They are prohibited in campgrounds and other Reserve roads such as Circle Creek Overlook, campground loops, and the road to Parking Lot Rock.

In September 2010, the Department of Justice, Civil Rights Division issued 28 CFR Part 35, “Nondiscrimination on the Basis of Disability in State and Local Government Services Final Rule,” which requires public entities to make reasonable modifications in their policies, practices, and procedures to permit the use of “Other Power-Driven Mobility Devices” (OPDMDs) by individuals with disabilities, unless the public entity can demonstrate that the use of the device is not reasonable or that its use will result in a fundamental alteration in the public entity’s services, programs, or activities. This ruling does not apply to federal lands, but a more specific ruling is expected to be issued for these lands. Because the Idaho Department of Parks and Recreation has lead jurisdiction of Section 36 within the Reserve, and because of the cooperative agreement between the National Park Service and the Idaho Department of Parks

and Recreation, the Reserve has applied IDPR policy and procedures to govern these uses. OPDMDs include such devices as Segways®, carts, scooters, and electrically assisted bikes. The full IDPR policy and Reserve’s assessments prohibiting or permitting such devices is available to the public online and can also be viewed at the visitor center. Table 34 lists the mileage of primary designated trails and roads within the Reserve.

Fences and Gates

The purposes of fences within the Reserve are to contain cattle, exclude cattle, define parking areas, and/or to prohibit visitor impacts on sensitive or high-use areas. Fences that do not serve these purposes are removed to restore the cultural landscape of the California Trail, provide safe and easy access for visitors to public lands, and reduce overall maintenance costs. Some fences or corrals are maintained as historic features of the Historic Rural Setting Zone, such as the corral near campsite 52 and another located near Checkered Demon. Fence ownership and maintenance responsibilities within the Reserve vary depending on the condition. Table 35 describes these responsibilities.

TABLE 34. PRIMARY DESIGNATED TRAILS AND ROADS WITH MILEAGE

Designated Trails	Miles	Roads	Miles
California (Smoky Mountain Connection)	0.58	Logger Springs Road	3.46
Steinfeld’s	1.00	Elephant Rock Campsite Road	0.76
Stripe Rock Loop	1.15	Circle Creek Overlook Road	0.83
GeoWatt	1.70	Pinnacle Pass Road	0.06
Box Top	0.60	Flaming Rock Campsite Road	0.21
Bumblie	0.50	Parking Lot Road	0.17
Flaming Rock	4.50	Bread Loaves Road	0.32
North Fork Circle Creek	1.60	Juniper Access Road	0.07
South Fork Circle Creek	2.31	Elephant Rock Road	0.95
Tea Kettle	0.30	Circle Creek Overlook Service Road	1.25
Stairways	0.34	Logger Springs Road	3.46
Bath Rock	0.60		
Creekside Towers	1.35		
Indian Grove	1.40		
Skyline Connection	0.29		
Total Miles of Designated Trails	18.22	Total Miles of Roads	8.08

TABLE 35. FENCE OWNERSHIP AND MAINTENANCE RESPONSIBILITIES

Disposition	Ownership	Maintained by
Private grazed land bordering public nongrazed land	Private landowner	Private landowner
Private grazed land bordering public grazed land	Shared by private landowner and Reserve (usually 50%)	Private landowner and Reserve Permittee ¹
Private nongrazed land bordering public grazed land	Reserve (unless private landowner disputes and prefers ownership)	Reserve permittee ¹
Fences completely within the interior of public lands	Reserve	Reserve permittee ¹

¹When a fence needs to be replaced, the Reserve usually initiates and funds the project.

Most gates within the Reserve conform to three types: 2-inch metal tubing panel (vehicle-sized and pedestrian), barbed wire, or low-profile 3-inch metal pipe gates in recreation areas (at the junction of Twin Sisters and City of Rocks roads and two on Circle Creek Overlook Road). The purposes of gates are to restrict unauthorized vehicles and to provide easy access for trail-users into and through public lands with no grazing allotments. As with obsolete fences, gates are removed when they are no longer needed or conform to the stated purpose.

Fences used to contain or exclude cattle are constructed with juniper posts of varying heights and four strands of barbed-wire to conform to the historic rural setting. Metal posts are used occasionally when the fence cannot be seen from the California Trail corridor.

Campgrounds and Associated Amenities

The Reserve has 64 standard campsites (numbered 1–64) spread out over 5.5 miles, at elevations ranging from 6,120 to 7,240 feet. Each site contains a numbered post, parking spur, picnic table, ground grill (fire ring), and tent pad as defined by 8x8 timbers. Some sites are further developed with a lodge-pole or boulder parking barrier. These sites are very popular from mid-May through mid-July and again in late August through September. Currently sites may be reserved up to nine months in advance through the ReserveAmerica system.

In addition, the Juniper group campsite is a small equestrian group area that includes a small corral, hitching posts, water trough, picnic tables, and electrical service. A vault toilet is also located at this facility. Two other group facilities are located in the Reserve: Twin Sisters group campsite (12–35 people) and Bread Loaves group campsite (12–25 people).

Due to the popularity of camping within the Reserve, a no-net loss approach to existing campsites is strongly supported by visitors and staff alike. An overall increase in sites is also desired where resources would not be impaired. A DCP effort on camping was conducted in 2010 to determine if some sites should be removed to protect resources, to increase visitor safety, to minimize day use/camping conflicts, and to determine if campsites could be added to offset potential losses or to increase capacity. This development concept plan is part of the general management plan and the recommendations have been incorporated into the alternatives. The DCP report, maps, and full recommendations are included in Appendix D.

The development concept plan recognizes that campsites immediately along the county road (specifically campsites 50, 51, and 57) create safety concerns and should be relocated to clustered areas, such as camping area 3 (Elephant Rock Loop, sites 5–32). The plan also identifies campsites that would better function as picnic sites, or should be removed altogether to eliminate conflicts with trailhead parking.

Most camping areas and day-use trailheads also include pre-cast concrete vault toilets. These are located at the Juniper group site, Twin Sisters group site, near campsites 12 and 27, at Bath Rock (two units), Parking Lot Rock, Bread Loaves, Finger Rock, and Circle Creek Overlook. Often associated with the toilets are information boards and recycling and refuse stations.

Wells and Water Development

Potable water is a rare commodity within the Reserve and is usually only available from May through October. The first well in the Reserve was established in 1989 at the Emery Pass Picnic Area (the only designated picnic area within the Reserve) and is operated by a hand pump. Drinking water quality is monitored monthly, according to state regulations. Potable water is also accessible from a well emplaced in 2000 between campsites 50 and 51. The water is pumped (powered by a photovoltaic system) and then piped underground to the Bath Rock parking area. This water is potable but often produces harmless orange algae. Both systems are closed and locked when night-time temperatures are consistently below freezing.

Additional water development on public land within the Reserve includes a well at Juniper group camp, which is currently not in use, and springs at Indian Grove, North Fork Circle Creek, and Tea Kettle. Another dozen wells and springs developed on private land within the Reserve boundary are not managed by staff nor would they be affected by this plan.

Five impoundments are documented within the Reserve; all of them except one are on private property. Circle Creek Impoundment #1 is located at the eastern boundary, several hundred yards upstream from where Circle Creek exits the Reserve. This obsolete facility is planned for removal so that the natural hydrology and riparian community can be restored.

Wayside Exhibits

In addition to information boards, low-profile wayside exhibits are located throughout the Reserve to provide nonpersonal interpretation at key points of significance. Most were designed by the National Park Service at the Harpers Ferry Center, but a few were developed by Reserve staff and produced by a private contractor (see “Table 33. Wayside Exhibits for City of Rocks National Reserve and Castle Rocks State Park”).

Utilities

Utilities such as electricity, water, sewer, phone, and communication towers are limited or not present within the Reserve. Raft River Rural Electrical Cooperative owns and operates an overhead electrical line located generally along the California Trail corridor. Reserve employees are working with the Co-op to move the overhead line underground along the county road. In 2007, more than a mile of overhead line was installed underground. The Co-op has tentatively committed to cost-sharing with the National Park Service to place the remaining 7.8 miles of line underground in the next three to five years. By placing the utility lines underground, the Reserve can remove a significant modern intrusion on the historic landscape, increase visitor experience, lower maintenance costs, and improve the life expectancy of the utility.

There are no phone or fiber optic utility lines within the Reserve; however, the Albion Telephone Company is interested in placing lines underground to service future customers on private lands within the Reserve and in Moulton (Junction Valley). Reserve staff communicate via handheld radio and a repeater station located atop Graham Peak. Albion Telephone Company uses a similar system to bounce transmissions from the Almo area to Moulton, via a relay station located just outside the Reserve’s south boundary. With the recent development of a cellular tower on Durfee Hill in Almo, some areas of the Reserve now have cellular phone coverage.

There are no other public utilities within the Reserve. In recent years, a number of applications for wind turbine projects and transmission lines have been made to the Bureau of Land Management, though none in the immediate viewshed of the Reserve had been approved at the time of this plan. Such applications are closely monitored by the National Park Service to ensure that the intent of Congress to protect the nationally significant values at City of Rocks is upheld. For example, transmission lines that might be constructed immediately on the Reserve's boundary along the California Trail would result in impairment of the feeling and association of the California National Historic Trail. A cellular tower or wind turbine placed immediately on the Reserve's boundaries would have the same detrimental effect.

Additional Support Facilities at Castle Rocks State Park

Unlike most traditional national park units, the Reserve's administrative support facilities are located entirely outside its boundary, on lands owned and managed by the Idaho Department of Parks and Recreation. These lands, known as Castle Rocks State Park, are divided between three separate units: Ranch Unit, Administrative Unit, and Smoky Mountain Unit. These units and the related facilities are discussed below.

Ranch Unit

Located a few miles northwest of Almo, the Ranch Unit (1,440 acres) includes a portion of the geological area known as Castle Rocks. This mostly day-use facility includes the Stines Creek Picnic Area, Almo Creek Picnic Area, Castle Rock Trail Head, the Lodge and Bunkhouse at Castle Rock Ranch, and associated parking areas. This unit contains more than eight miles of trails. The Ranch Unit supports the Reserve by providing additional climbing areas (including multipitch climbs) and picnic facilities. Most of the lowlands provide pasture for grazing. The Almo Creek Wetland and Eagle Rock Grove Wetland are livestock enclosures around sensitive riparian communities. These

areas offer the visitor a biologically diverse resource to explore. Attached to this unit on the east is a 200-acre conservation easement purchased from the Sheridan family. The purpose of the easement is to provide in perpetuity the scenic view of the Castle Rocks pinnacles and to provide recreational access to the 10 acres adjacent to Eagle Rock.

Smoky Mountain Unit

The Smoky Mountain Unit (240 acres) is located one mile southwest of Almo and features a 38-site campground (6 equestrian campsites), with water, electricity, flush toilets, showers, and a recreational vehicle sanitation facility. Also included in the unit is a day-use equestrian trailhead and trail connecting to the Reserve. A well and storage tank are additionally included in the BLM Recreation and Public Purposes Lease to the Idaho Department of Parks and Recreation. Previous planning efforts by both the National Park Service and the Idaho Department of Parks and Recreation have identified this unit as the ideal location for construction of a new visitor center. The Reserve's 1996 comprehensive management plan also called for maintenance and employee facilities at this location. Since that plan was written, the Idaho Department of Parks and Recreation was able to secure property in Almo to provide those facilities (discussed below).

RESERVE ADMINISTRATIVE STRUCTURE

Reserve programs are the departments or divisions that function to support the mission and goals of the Reserve's legislative mandate and general management plan. Currently the Reserve maintains the following five programs:

- Administration
- Maintenance and Operations
- Visitor Services
- Climbing Management and Trails
- Integrated Resource Management

These programs and the associated staffing are discussed below.

Administration

The administrative functions of the Reserve include strategic planning, budget, accounts receivable and payable, human resources, records management, partnership development, media relations, office support (information technology), and coordination of all other programs. Administration also writes annual reports and provides operational statistics to agency leadership. Staffing in the program includes the park superintendent, assistant park manager, and on occasion an intern or part-time administrative assistant. Offices for administration are located on the second floor of the visitor center.

Maintenance and Operations

As its name implies, functions of this program include maintaining facilities and managing assets. Typical summer operations include waste management (also recycling), vehicle maintenance and repair, mowing and watering landscaped areas, and implementing construction projects. All of the Reserve facilities discussed previously are maintained by this program except for fences and trails. Staffing includes a chief of maintenance, three eight-month seasonal leads, and five to eight seasonal maintenance aides. This program receives the largest portion of both the annual budget and project funding.

Visitor Services

Parks are for people. Visitors require information, orientation, and interpretation before and during their visit. They want to experience the opportunities and national significance of City of Rocks. In some cases, they want to support and participate in its care. The visitor services program manages the visitor center, exhibits, websites, brochures and publications, resale program, reservation system, interpretation, and volunteers. The program is supported by one park ranger (the chief of visitor services), an eight-month visitor services lead, and three fee collectors. Routine responsibilities include greeting visitors, offering assistance, collecting fees, leading hikes, giving

talks, working with volunteers, and facilitating recreational and learning opportunities, such as the climbing experience program.

Climbing Management and Trails

Climbing is the recreational activity in the Reserve that attracts the greatest number of participants. Climbers impact resources by installing fixed anchors, establishing staging areas, and creating necessary trails to rocks. To ensure that these impacts are minimized and mitigated, the climbing ranger works with user groups, park management, and resource managers. The fixed-anchor permit system and assessment of routes and other impacts are processed by the climbing ranger. Trails are used by climbers and nonclimbers alike but are critical to climbing, so trail maintenance, planning, and occasionally new construction are managed by this program. Public Land Corps funds have traditionally supplemented the annual maintenance of the Reserve trail system. A number of volunteer groups also assist in the effort. The climbing ranger additionally supervises two summer seasonal trail crew members. This program takes the lead in incident/accident management, visitor safety, and rules compliance.

Integrated Resources

Public Law 100-696 is very clear about the Reserve's purpose—to protect significant historical and cultural resources and to protect and maintain scenic quality. This day-to-day responsibility is carried out by the park ranger for cultural resources (chief of cultural resources) and the park ranger for natural resources. Both rangers work closely together to conduct research and facilitate studies, surveys, inventories, and monitoring. Cultural resources include the landscape, and the landscape is impacted by vegetation and land use, which are managed by the natural resources ranger. Routine activities include grazing management; irrigation; water management, including water quality testing; fence repair; preparation of environmental compliance documents; collections management;

archeological surveys; and historical research to enrich Reserve interpretation. This integrated resources program is supported by two resource technicians and a Youth Conservation Corps program (a crew leader and four members), who work generally from May through September. Fire prevention and protection, noxious weed management, and landscape restoration are also managed by the resources program.

Commercial Services

The Reserve has no concession facilities within its boundaries; however, a number of guides and outfitters do operate without support facilities or leases. Because climbing is one of the most popular recreational activities within the Reserve, it is not surprising that most guides and outfitters fall within this category. Generally, these small businesses are based in other cities and operate websites and/or store fronts where potential clients can reserve a guide or sign up for a course being taught in the Reserve. Typically, visitors would meet the guide onsite.

Before a guide or outfitter can operate within the Reserve, they must be permitted. The cooperative agreement between the National Park Service and the Idaho Department of Parks and Recreation guides this process and is stipulated in V.b.1-7 as follows:

V. Special Park Uses

b) Commercial Uses and Other Activities

Only commercial activities which directly contribute to understanding, appreciation, and stewardship of Reserve resources or to appropriate recreational uses of the Reserve will be permitted.

1. Engaging in any business operation and recreational activities, such as special events, assemblies, meetings, etc., will be permitted only in accordance with IDAPA 26.01.20 650, established IDPR standards, provisions of a permit, or other written agreement.
2. IDPR will permit no business operations or other commercial activities to be based within the boundaries of the Reserve without the prior approval of the NPS. All such activities and permits shall be allowed in accordance with established procedures, provisions of a permit or other written agreements. Soliciting for business in the Reserve is prohibited.
3. Permitted commercial activities must be appropriate to the Reserve and offer no threat to resources values or visitor use.
4. All commercial guiding operators will meet the criteria of the Idaho Outfitters and Guides Licensing Board prior to initiating activities within the Reserve.
5. As a condition of issuance of a commercial permit, license or written agreement, IDPR may require:
 - a. Proof of liability insurance in which IDPR is named as co-insured in an amount sufficient to protect IDPR and the United States.
 - b. The filing of a bond payable to IDPR, in an amount adequate to cover costs, such as rehabilitation and cleanup of the area used. In lieu of a bond, a deposit of cash equal to the amount of the required bond is acceptable.
 - c. The permit, license, or agreement may contain such conditions as are reasonably appropriate to the Reserve and consistent with protection and use of the Reserve for the purposes for which it was established, i.e., resource values or visitor use.
6. All permits, license, or other commercial activity fees collected by IDPR will be utilized at the Reserve for associated programs, operating expenses, or for improvement projects directly related to the Reserve.

7. Commercial operations, private individuals, profit/non-profit groups, and organizations will not be granted exclusive use of Reserve lands, resources or facilities, nor given a right of preference in the renewal or negotiation of a new authorization.

In recent years, four guide and outfitter operations were compliant with these conditions, and included Exum Guide Service and School of American Mountaineering of Jackson Hole, Wyoming; Jackson Hole (The Mountain Guides) of Jackson Hole, Wyoming; Sawtooth Mountain Guides of Stanley, Idaho; and Indian Grove Outfitters of Almo Idaho. Indian Grove Outfitters is an equestrian outfitter, offering overnight pack trips and short rides from one to three hours. The Idaho Outfitters and Guides Licensing Board has given exclusive rights to Indian Grove Outfitters for equestrian activities in this geographic area. It allows an unlimited number of climbing guides to operate in the same region. One hunting guide is permitted within the region but is not known to conduct business within the Reserve.

Because the Idaho Department of Parks and Recreation regulates the permit system for the Reserve, guides and outfitters are also able to operate in nearby Castle Rocks State Park under one permit. Minor facility enhancements have been made at the Ranch Unit of the state park to accommodate equestrian staging. The need to make similar enhancements for equestrian activities exists within the Reserve. There are very few places suitable to stage horses and clients that are planning to access equestrian trails.

PARTNERSHIPS

Unlike most units of the national park system, the Reserve was designated by Congress to be a perpetual partnership. Public law 100-696 established that “the Secretary shall, pursuant to cooperative agreement— transfer management and administration. . .” The transfer became official on May 2, 1996, during a ceremony and signing of the cooperative agreement between the National Park Service and the

Idaho Department of Parks and Recreation. The rationale behind this atypical arrangement was to demonstrate that places of national significance can be managed locally if given the right mix of partners and resources.

The National Park Service and the Idaho Department of Parks and Recreation may be the most active partners in the day-to-day preservation of the Reserve, but other partners abound. Protection of the Reserve’s cultural landscape would not be possible without the cooperation of private landowners. Even today, 4,087 acres are privately owned within the Reserve boundary, and these lands include 4.5 miles of the California National Historic Trail. To ensure that private landownership would continue, and yet to prevent conflicting development, Cassia County commissioners enacted one of the most forward-thinking zones established in rural Idaho. The Historic Preservation Zone overlays much of the Reserve. This zone permits landowners to continue business as usual prior to November 1988, which was and remains primarily grazing. Construction of a home, barn, shed, and/or other needed facility is permitted for the landowner of record, and these can be built with consideration given to proper design, materials, color, and location. Cassia County’s continued partnership and commitment is key to the Reserve concept.

A number of state and federal agencies play a role in the preservation of natural resources. The U.S. Fish and Wildlife Service regulates the management and protection of federally protected species. The Idaho Department of Fish and Game establishes and regulates hunting seasons and assists the Reserve in the research and protection of non-game species. Much of our understanding of the unique geology of the Reserve comes from the scientists of the U.S. Geological Survey and institutions of higher learning such as Whitman College. Protection of the largest pinyon pine forest in Idaho is due in part to fire protection partnerships with the Bureau of Land Management, U.S. Forest Service, and the Almo, Connor Creek, Elba Fire Protection District. Noxious weed eradication efforts are greatly enhanced by working with Cassia County’s Weed Control Program.

Management decisions are based on good science. The Upper Columbia Basin Network Inventory and Monitoring Program, based at the University of Idaho, provides important baseline data and trends for the health of the Reserve natural resources. The Northern Rocky Mountain Exotic Plant Management Team assists resource managers with periodic annual visits to treat noxious weeds.

The Idaho State Historic Preservation Office provides assistance and guidance in the protection of cultural resources. The Shoshone-Bannock Tribes of the Fort Hall Indian Reservation also provide park managers with an understanding and context of their ancestral lands that include the Reserve. The Oregon-California Trails Association is an example of an important partnership with a nonprofit organization to protect cultural resources. Groups such as this, the Access Fund, and the Cache Peak Civic Association periodically provide additional funds for land protection and projects to enhance visitor understanding and enjoyment. Cooperative funding for Raft River Rural Electric, Inc. to move overhead power lines underground is a prime example of how local business and government can work together to achieve cultural landscape improvements.

Visitor protection is significantly improved by trained emergency medical technicians in the local communities. Volunteer members of the Quick Response Unit from Almo and Yost respond to accidents and injuries. Life Run and Life Flight Services from area medical facilities are critical partners in the care of visitors who become patients. Cassia County Sheriff's Department provides the law enforcement that is needed beyond the rule compliance provided by park rangers.

Many of the roads within the Reserve are maintained by the Cassia County Road and Bridge Department. Approximately 35,000 vehicles enter and exit the Reserve on these roads annually. Road maintenance and reconstruction by the county is critical to visitor enjoyment and safety. Often park staff work in partnership with the county road foreman

to maintain road services, make emergency repairs, and provide additional materials such as culverts, directional signs, and cattle guards. Over the years, the Reserve operation has transferred its older and previously replaced vehicles and equipment to the county to offset the significant costs associated with maintaining these rural roads.

The Reserve's 22.4 miles of hiking, biking, and equestrian trails require significant annual maintenance. The National Park Service base funds a small crew and also provides funding to contract a Public Land Corps to supplement those efforts. For many years the Montana Conservation Corps has provided those services. A number of volunteer groups also contribute to this effort, notably the National Outdoor Leadership School, the Boy Scouts of America, and the Cache Peak Back Country Horseman's Association.

City of Rocks receives more than 100,000 visitors annually, many of whom first learned of the destination through a tourism office or visitor center. Marketing the Reserve would not be successful without partnerships between the Idaho Department of Parks and Recreation and Southern Idaho Tourism, as well as the Mini-Cassia Chamber of Commerce. The *Times-News*, *Idaho Statesman*, *Idaho State Journal*, and other statewide media routinely print the Reserve's special events and public notices, and all are important partners in educating the public about opportunities to participate in park planning.

Still, the most significant partnership remains that between the National Park Service and the Idaho Department of Parks and Recreation. Both agencies provide base funding to the operation, in addition to periodic grants for facility development or landscape restoration. Although all employees on site are provided by the Idaho Department of Parks and Recreation, NPS resource specialists from area units and regional offices play a significant role in planning and achieving management goals. The Reserve's "2014 Operation Plan and Guidelines for the Management of City of Rocks National Reserve (CIRO)" (a detailed implementation plan codified in the cooperative

agreement) designates planning as the primary responsibility of the National Park Service. The Idaho Department of Parks and Recreation assists in the development of those plans and then works to achieve success on the ground. This partnership model has proven successful, despite the managerial efforts required to blend regulations and policies from two agencies and two different fiscal years of operation. Essential to the success of this partnership, and to all the partnerships previously mentioned, is a common interest and objective. This purpose, as stated by Congress, is to “...*preserve and protect the significant historical and cultural resources; to manage recreational use; to protect and maintain scenic quality; and to interpret the nationally significant values of the reserve.*”

SOCIOECONOMICS

DEMOGRAPHICS

City of Rocks National Reserve is located in Cassia County, Idaho. Cassia County was created by the Idaho Territorial Legislature on February 20, 1879. The county was named for Cassia Creek, which was named for John Cazier, a member of the Mormon Battalion and an emigrant train captain. The history of

Cassia County is the history of the real West—of cowboys and Indians, emigrants and settlers, and stage coaches and railroads.

Cassia County’s history is one of cooperation: from the days of the covered wagons through the digging of the deep wells in the mid-20th century to the current high-tech age of modern agriculture, much collaboration was needed to build an agriculture-based economy so reliant on irrigation (Cassia 2013).

Cassia County ranks 14th in the state for total population and 2nd in the state for total farm income. This income includes crops from developed croplands and products from agricultural processing centered in Burley (University of Idaho Extension 2012). The county’s population grew by more than 14% from 1970 to 1980, by 9% from 1980 to 1990, by 9% again from 1990 to 2000, and by 7% between 2000 and 2008. The county additionally anticipates a projected growth of 11% by 2020 (Cassia 2006; U.S. Census Bureau 2010).

TABLE 36. CASSIA COUNTY POPULATION TRENDS AND 2020 PROJECTION

Cassia County	1980	1990	2000	2010*	2020
	19,427	19,532	21,416	22,952	25,457

(Cassia 2006) *Note: 2010 data revised to reflect the actual U.S. Census Bureau data.

TABLE 37. COMMUNITY POPULATION TRENDS

Community	1970	1980	1990	2000	2010*	2011	% Change from 1970–2011
Albion	229	286	305	262	269	269	+2%
Burley	8,079	8,525	8,702	9,316	10,405	10,447	+29%
Declo	251	276	279	338	345	346	+38%
Malta	196	196	171	177	194	194	-1%
Oakley	656	663	635	668	767	772	+18%
Almo	175	**	**	140	168	N/A	N/A
Cassia County	20,300	19,427	19,532	21,416	22,091	23,186	+14%

(U.S. Census Bureau 2010) *Note: 2010 data revised to reflect the actual U.S. Census Bureau data. **Included in larger area.

The economic base of Cassia County is agriculture and agriculture-related industries. Traditionally Cassia County has had a higher unemployment rate than the rest of south central Idaho. The closure of the J. R. Simplot potato processing plant in 2003 caused the unemployment rate for Cassia County to increase to 6% in 2004. Companies such as Dutchmen Manufacturing, a large recreational

vehicle manufacturer, and Mulholland Positioning Systems, Inc., have recently revitalized Cassia County's industry. Pacific Ethanol started production in April 2008 after a large hiring spree. DOT Foods, a national redistribution company, is located in Cassia County and employs an estimated 50 truck drivers and 100 assembly workers (University of Idaho Extension 2012).

TABLE 38. CASSIA COUNTY EMPLOYMENT BY INDUSTRY

Industry Type	1980	1985	1990	2000	2010
Farm	1,979	1,731	1,616	1,879	2,899
Agricultural services, forest, fish, and other agriculture-related industry	378	342	495	610	
Manufacturing	1,558	1,354	1,615	1,286	1,202
Mining	55	37	49	127	1,340
Construction	423	417	407	642	357
Transport, commercial services, public utilities	313	277	298	660	2,502
Wholesale trade	592	510	456	514	
Retail trade	1,637	1,531	1,712	2,659	
Finance, insurance. And real estate	556	540	594	733	
Services	1,415	1,531	1,784	2,659	5,220
Federal civilian	234	196	175	179	
Federal military	128	114	125	87	
State and local government	951	986	1,112	1,444	

(Cassia County 2006) Note: County Profiles of Idaho Prepared by Gregory Rogers, Regional labor Economist, Idaho Department of Commerce and labor. Retrieved from Cassia County Comprehensive Plan on 1/29/2013.

(Idaho Department of Labor 2013)

TABLE 39. COVERED EMPLOYMENT AND AVERAGE ANNUAL WAGES PER JOB FOR 2001, 2010, AND 2011

	2001		2010		2011	
	Average Employment	Average Wages	Average Employment	Average Wages	Average Employment	Average Wages
Agriculture	991	\$19,103	1,418	\$28,872	1,418	\$28,872
Mining	112	\$23,357	92	\$30,273	92	\$31,156
Construction	352	\$27,354	361	\$30,982	367	\$32,161
Manufacturing	1,108	\$26,828	1,195	\$37,495	1,234	\$39,260
Trade, Utilities, and Transportation	2,257	\$21,021	2,477	\$28,473	2,531	\$29,912
Information	151	\$23,195	81	\$48,856	75	\$47,692
Financial Activities	266	\$27,082	253	\$32,616	232	\$35,559
Professional and Business Services	320	\$15,948	349	\$31,996	330	\$30,827
Educational and Health Services	907	\$22,659	1,294	\$25,568	1,286	\$27,110
Leisure and Hospitality	584	\$7,904	499	\$10,097	520	\$10,032
Other Services	183	\$15,199	128	\$19,403	146	\$19,715
Government	1,619	\$25,275	1,658	\$29,380	1,617	\$28,534

Wages have traditionally been low in Cassia County, but the increase of manufacturing companies, particularly over the last decade, has had a beneficial effect on wages in the area. Most jobs had been in agriculture, food processing, retail, or services. The dairy industry has brought stability to agricultural wages. Cassia is the leading county in the state for agricultural receipts. Per capita income grew by 7.6% from 2010 and has exceeded the state's per capita income the last two years, as well as in 2008

when agricultural prices and yields saw record highs. Cassia County's per capita income is 17% less than the nation's but the gap continues to narrow. Growth in covered wages from 2010 to 2011 was most significant in agriculture at 3% while manufacturing's employment grew 3.3% and wages almost 5% (Idaho Department of Labor 2013). Average per capita income increased from \$24,534 in 2002 to \$34,515 in 2011, an increase of 41%. Fourteen percent of the population is below the poverty line (U.S. Census Bureau 2011).

Almo

Almo, a very small unincorporated village, is part of the greater Burley, Idaho, micropolitan statistical area. The town is located at the eastern and primary gateway to City of Rocks National Reserve. It is located just two miles east of the Reserve. The town was settled in the 1870s. Almo is the site of the oldest building in the county, Tracy Store, which opened in 1894 (Cassia County 2013).

In 2000, the greater Almo community had a population of 168 (based on zip code 83312), a land area of 35.11 square miles, and a population density of 8.3 people per square mile. There were 86 households in the Almo area, the average household size was 2.80, and the average family size was 3.162 (U.S. Census Bureau 2010).² The median income per household was \$59,821. The per capita income was \$17,734, and 50.3% of families live below the poverty line. Almo's cost of living was 21.2% lower than the U.S. average (U.S. Census Bureau 2010).

Community

The Almo Elementary School is a two-room schoolhouse with grades K through 1 in one room and grades 2 through 3 in the other. There are about 15 students per teacher in Almo. Student in grades 4 through 12 travel up to 30 miles to reach the local public schools. The Almo Church is the predominant social center with church-sponsored sporting and social events. The Reserve headquarters is located in Almo and currently consists of a converted home serving as the visitor center, two residences, and a shop/conference center.

The layout of Almo is typical of Mormon colonies (Arrington 1979). Elements include a

2: According to the U.S. Census Bureau: "Family households consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couple households are included in the family households' category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. 'Nonfamily households' consist of people living alone and households which do not have any members related to the householder."

wide north-south main street; the Church of Jesus Christ of Latter-day Saints (Mormon) Church one block off the main intersection; and the Almo School and Tracy Store, located in the center of town. The Outpost Steakhouse and Almo Creek Inn are rustic reminders of Almo's western heritage. Houses and barns cluster around the center of town and fields radiate away from the town center.

Structures in Almo were originally made with logs harvested from the hills within the present-day Reserve and Sawtooth National Forest. Limited use of locally quarried white-quartz granite replaced log construction by 1900. The advent of a brick operation in Almo supplied materials to Albion and Declo and allowed for fine masonry early in the life of these surprisingly remote settlements. The Tracy Store in Almo, the hotel in Declo, and the normal school in Albion are excellent examples of the craftsmanship achieved using the russet native sandstone brick. The Tracy Store/post office, the Almo Elementary School diagonally across from the store, and the current City of Rocks/Castle Rocks Visitor Center are examples of early sandstone brick structures.

The quality of life in Almo is quiet, peaceful, family-centered, and community-oriented according to interviews with residents. Local crime is nearly nonexistent. Citizens claim they can walk out their door and hear the sounds of the wind and their neighbors' chickens one-quarter mile away. They also describe themselves as quiet, private folks who are comfortable and content with their lives. As in many rural locations, youthful restlessness causes departures. Within the last few years, however, many of the young residents have returned to the Almo area to raise their families.

Land uses adjacent to town include dryland farm fields and the cemetery. Visual details include hayfields that crowd into the edge of town; houses, barns, and yard gates that stand close to the county road; bridges constructed of peeled logs; and fences with crafted wooden gates. Horses occasionally graze unrestrained

within the road right-of-way and cattle graze in nearby pastures. Occasional driving of cattle between pastures is typical in the road right-of way.

On the other side of the Reserve in Moulton, corrals and loading chutes, along with dilapidated buildings form a small ghost town, suggesting a more rugged pioneer existence. Gray, weathered log and wood-shingled structures seem timeless. Unmilled logs and milled lumber are used for livestock containments in this area. Remnants of a historic line camp (an outpost structure used by employees working on the outlying parts of a large ranch) indicate the more recent tie to ranching and cattle raising operations on this side of the Reserve. Lands are privately owned, in sagebrush cover, and used for grazing.

Oakley

Oakley is the western gateway to the Reserve and is 12 miles from its west entrance. It is located on the western side of the Albion Mountains and is at the very southern limit of the Snake River Plain, close to Goose Creek and between Middle Mountain and the Albion Mountains. With an elevation of 4,560 feet, the town is primarily surrounded by irrigated potato and sugar beet fields.

The town was settled by Mormons at the same time as Almo. Oakley continues to be 98% Mormon. Historically it served as the religious center of the county and was home to the “Oakley Stake” building, the headquarters of the Church of Jesus Christ of Latter-day Saints. (A stake is a Mormon term and means a designated geographic area of inhabitants that is divided into wards and branches.) As other Mormon communities became established and the county grew in size, other stake centers were created. The town has a developed commercial and residential downtown that has been designated a national historic district.

Oakley is rich in old west lore, such as the tale of outlaw Diamondfield Jack, who was tried for the murder of two cattle ranchers, and the intriguing story of Gobo Fango, a West African

shepherd who, upon receiving a series of fatal injuries during a land dispute, bequeathed funds toward the construction of the first Church of Jesus Christ of Latter-day Saints Temple. The town is home to the current Idaho Assistant House Majority Leader, Scott Bedke.

Oakley has become recognized worldwide for its Middle Mountain quarries of Elba Quartzite, known as Oakley Stone, which is used for decorative construction. Quarry operators ship out thousands of tons a month to locations around the globe. The quarrying of mica-like sheets of ferrous-colored Oakley Stone has become the major industry in town. This stone, suitable for veneer and paving applications, can be seen throughout the region as well as on buildings in town. The renovation of the historic opera house included Oakley Stone paving on the lobby floor. Today, many people remark that Oakley is the very last “Mayberry” left in America, and is frequently visited for its Victorian homes.

The population of Oakley in 2010 was 763. There were 248 households, the average household size was 3.08, and the average family size was 3.60. The median household income was \$40,357, and the per capita income for the city was \$13,670. Eleven percent of families and 14.4% of the population were below the poverty line (U.S. Census Bureau 2010).

Albion

The Albion Valley is the starting or ending point of the City of Rocks Scenic Back Country Byway. The National Reserve is only 30 miles south via the Back Country Byway. Albion was the county seat of Cassia County from 1879 to 1918.

Albion is a small community nestled in the shadow of Mt. Harrison, and it offers the visitor a unique look into the early history of Cassia County and Southern Idaho. Albion is one of the few communities in the Magic Valley region of Idaho founded before 1900. Established in 1893, the town was home to the Albion State Normal School, which trained many early Idaho teachers. The school was closed in 1951. The campus was later occupied by Magic Valley

Christian College. Today, it has been renovated for the Albion Campus Retreat a unique historical retreat (Albion Valley Historical Society 2013).

Well-known local businesses of the area include: the D. L. Evans Bank, which was founded in Albion in 1904 and is headquartered in Burley, and the Pomerelle Mountain Ski Resort. New businesses and residential developments seek to revitalize this historic community.

As of 2010, the population of Albion was 267 people and 113 households, and the average family size was 3.70. The median household income was \$52,500. The per capita income for the city was \$23,565. About 7.4% of the population lived below the poverty line (U.S. Census Bureau 2010).

Malta

Travelers approaching City of Rocks from the east may pass through the small community of Malta. Malta is located in Cassia County on Idaho State Highway 81 southeast of Burley and sits in a wide valley between the Black Pine Mountains to the east and the Jim Sage/Cotterel Range to the west. At an elevation of 4410 feet, it is rich with grazing lands and dotted with dairy farms. Agriculture is the main industry, producing potatoes, beets, alfalfa, and several other crops. The town has two gas stations, two grocery stores, one church, and one café. Malta is the home of Raft River Elementary School and High School. Children are transported from several nearby communities to the schools. The vast majority of the population is Mormon. Farming, ranching, dairy, and feedlot operations provide the economic base for the Malta Valley.

In 2010 the population of Malta was 193 people and 66 households, with an average household size of 2.92. The average family size was 3.70. The median income for a family was \$50,417. About 4.9% of the population lived below the poverty line (U.S. Census Bureau 2010).

Declo

Declo is another small community that visitors travel through to reach City of Rocks National Reserve. The world's largest potato processing company was founded near here in 1923 by a 14-year-old entrepreneur named J. R. Simplot. The corporate headquarters for the J. R. Simplot Company are now located in Boise. Declo was originally named Marshfield; its name was changed circa 1916.

Agricultural land uses and related activities are the economic base of the Declo area. The town is surrounded primarily by irrigated potato, grain, and sugar beet fields and by dry farm wheat fields.

In 2010 the population for Declo was 343, and there were 115 households. The average family size was 3.44. The median income for a family was \$45,385, and the per capita income for the city was \$16,974. About 13.3% of families were living below the poverty line (U.S. Census Bureau 2010).

RESERVE ECONOMIC IMPACT ON THE LOCAL COMMUNITY

The Money Generation Model (MGM) is a set of workbooks for estimating the economic impacts of NPS visitor spending on a local region. The MGM estimates the impacts that park visitors have on the local economy in terms of their contribution to sales, income, and jobs in the area. The MGM produces quantifiable measures of park economic benefits that can be used for planning, concessions management, budget justifications, policy analysis, and marketing. Economic impact information has proven quite helpful in fostering partnerships within the community and garnering support for park policies and interests. The economic analysis also helps to identify the roles the park, local community, and tourism businesses play in attracting and serving visitors. Table 40 lists the economic impact that City of Rocks has in the local community. Total visitor spending for 2009 was more than \$6 million.

TABLE 40. ECONOMIC IMPACT OF CITY OF ROCKS NATIONAL RESERVE ON COMMUNITY

	Public Use Data		Visitor Spending 2010		Impacts of Non-Local Visitor Spending		
Park Unit	2010 Recreation Visits	2010 Overnight Stays	All Visitor Spending (\$)	Nonlocal Visitor Spending (\$)	Jobs	Labor Income (\$)	Value Added (\$)
City of Rocks National Reserve	92,484	0	6,278,000	5,959,000	85	2,078,000	3,361,000

(Stynes 2011)

Chapter 5

Environmental Consequences





Chapter 5: Environmental Consequences

This chapter describes the impacts of each alternative on City of Rocks National Reserve resources, including cumulative impacts. Methods used for the analysis are explained in the “Methodology” section below and expanded under each impact topic. To compare the differences in projected impacts among the alternatives, a summary of impacts (table 19) is located at the end of “Chapter 3: Alternatives.”

INTRODUCTION

The National Environmental Policy Act requires that government agencies disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. (In this document, “effects” and “impacts” are used interchangeably.) This section analyzes the environmental impacts of GMP alternatives on affected resources. These analyses provide the basis for comparing the effects of the alternatives.

The National Environmental Policy Act requires consideration of the context, intensity, and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate impacts. In addition to determining the environmental impacts of the preferred and other alternatives, NPS *Management Policies* 2006 (NPS 2006a) and Director’s Order 12 (NPS 2001) require analysis of potential effects to determine if actions would impair park resources. This analysis will be completed for the selected alternative and appended to the decision document (Record of Decision). The context for understanding the analysis within this chapter is provided in the “Affected Environment” chapter and in the “Impact Topics” section in “Chapter 1: Introduction and Background.” Additional information that supports this is included in the impact analysis.

METHODOLOGY

This section describes the terms that are used to evaluate environmental impacts.

Context of impact: The context is the setting within which impacts are analyzed—such as the project area or region, or for cultural resources, the project action area or area of potential effects.

Type of impact: The type of impact is a measure of whether the action will improve or harm the resource and whether that harm occurs immediately or at some later point in time.

- **Beneficial:** The impact improves the resource or the quality or quantity of the resource.
- **Adverse:** The impact harms or depletes the resource or its quality or quantity.
- **Direct:** The impact is caused by and occurring at the same time and place as the action.
- **Indirect:** The impact is caused by the action, but occurs later in time, or at another place, or to another resource.

Duration of impact: Duration is a measure of the time period over which the effects of an impact persist and may be short-term (quickly reversible and associated with a specific event during project implementation, such as construction) or long-term (reversible over a much longer period or may occur continuously based on normal activity). In general, impacts would be long-term unless they are preceded by “short-term.”

Area of impact: Impacts may be localized, detectable only in the vicinity of the activity, or widespread, detectable on a regional or landscape level.

Intensity of impact: In this document, the intensity of impact is measured using the following scale: negligible, minor, moderate, and major. These are defined for each resource within the analysis sections. In addition, determinations of effect for actions that would affect threatened or endangered species comply with section 7 of the Endangered Species Act (no effect; may affect, not likely to adversely affect; and may affect, likely to adversely affect), while determinations of effect for cultural resources also comply with section 106 of the National Historic Preservation Act (no historic properties affected, no adverse effect, and adverse effect).

Impact mitigation: Impacts have been assessed under the assumption that proposed measures to minimize or mitigate the impact would be implemented. (These measures are described following each section of analysis.) The following terms identify ways to change the intensity of impacts or to change the resource condition following impacts. Project actions can

- avoid conducting management activities in an area or at a time that affects the resource
- minimize the type, duration, or intensity of the impact on an affected resource
- mitigate the impact by
 - » repairing localized damage to the affected resource immediately after an adverse impact
 - » rehabilitating an affected resource with a combination of additional management activities
 - » compensating for a major long-term adverse direct impact through additional strategies designed to improve an affected resource to the degree practicable

CONTEXT AND DURATION FOR IMPACTS EVALUATED IN THE CITY OF ROCKS NATIONAL RESERVE GENERAL MANAGEMENT PLAN

Direct, indirect, and cumulative impacts are evaluated in terms of context and duration. Except where inserted in the impact analysis sections below and associated with cumulative impact analysis (see below), the context and duration is as follows for all resource impact topics.

Context of impact: Changes were considered within the legislative boundary of the Reserve, including those on administrative properties owned or managed by the State of Idaho. For alternatives that include boundary modifications, impacts were identified that were specifically associated with those areas.

Duration of impact:

Short-term: These impacts are often quickly reversible; associated with a specific event during project implementation, such as construction; and occur for a period of fewer than one to five years.

Long-term: These impacts are reversible over a much longer period, may occur continuously based on normal activity, or may occur for more than five years.

METHODS AND ASSUMPTIONS FOR ANALYZING IMPACTS

CUMULATIVE IMPACTS

The Council on Environmental Quality describes a cumulative impact as follows (40CFR 1508.7): A “cumulative impact” is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The cumulative projects addressed in this analysis include past and present actions, as well as any planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future in the vicinity of the Reserve. Cumulative actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. Because most of the future cumulative projects are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project.

The following plans, projects, and issues (climate change) are included in the cumulative impacts scenario.

CITY OF ROCKS NATIONAL RESERVE PLANS

City of Rocks National Reserve Final Comprehensive Management Plan, Development Concept Plan, Environmental Impact Statement

Under this plan (published in 1994 with a Record of Decision in 1996), which would be carried forth in alternative A, approximately 24 acres of vegetation would be affected within the Reserve from the development or restoration of

dispersed campsites, roads, and trails. Another 77 acres outside the Reserve were proposed to be disturbed by development of new facilities. Approximately 283 acres of public land were also proposed to be closed to grazing. This included reducing the total number of animal unit months as permittees vacated allotments (Reserve 1996a).

Grazing Management Plan, City of Rocks National Reserve / Finding of No Significant Impact

This plan identified the appropriate levels and types of grazing uses, the impacts associated with these uses, and the levels and kinds of management actions necessary to reduce impacts and ensure long-term protection of Reserve resources and values (Reserve 1996b).

Resource Management Plan for City of Rocks National Reserve

This evolving plan identifies the natural and cultural resource management projects that should be undertaken by the Reserve to better understand and protect these resources. The resource stewardship strategy called for by the GMP would replace this plan (Reserve 1996c).

City of Rocks Interim Trail Management Plan

This plan was produced to develop a comprehensive trail network suitably adapted to the terrain and climatic conditions that would meet the visitor use and interpretive goals identified in the Reserve’s 1996 comprehensive management plan. The intent of the interim trail management plan was to use appropriate research and planning to select and design trails to reduce mitigation costs and to improve resource protection (Reserve 1997).

City of Rocks National Reserve Climbing Management Plan

This plan was prepared to determine the appropriate level and type of climbing practices, what types and levels of impact associated with climbing are acceptable, what climbing practices should be used and are appropriate, and what levels and kinds of mitigation measures are necessary to ensure a sustainable range of climbing opportunities consistent with protection of the Reserve's natural and cultural resources and retention of high-quality visitor experiences.

Consistent with the comprehensive management plan and consultation with the Idaho State Historic Preservation Office and the Advisory Council on Historic Preservation, the Twin Sisters formation was closed to all but incidental recreational uses associated with access, enjoyment, and interpretation of the California Trail (Reserve 1998a).

Restroom Improvements at Finger Rock Finding of No Significant Impact

The purpose of this project was to construct a new vault toilet and parking area at Finger Rock to accommodate camping and climbing occurring there (Reserve 2003).

Borrow Pit Restoration Project Finding of No Significant Impact

The purpose of this project was to partially or fully restore the degraded borrow pit located near the east entrance to City of Rocks National Reserve (SE ¼, Sec. 29, T15S, R24E) to improve the California Trail viewshed. Protecting the foreground views allows visitors to experience a landscape reminiscent of the trail period. The project included reestablishment of the natural topography, placement of suitable topsoil, and revegetation of most of the site (Reserve 2004).

Fire Management Plan: City of Rocks National Reserve

The fire management plan provides a framework for the management of fire and identifies hazard fuel reduction as a tool to safely accomplish the resource protection and management objectives of City of Rocks National Reserve. The current fire management plan precludes the use of fire to accomplish resource objectives within the Reserve. However, the following goal allows for potential future use of prescribed fire pending additional analysis:

Develop processes for determining how to restore fire as a natural process through the appropriate application of prescribed fire. Prescribed fire will be explored as a methodology for achieving resource management objectives, maintaining historic and cultural landscapes, and improving forage production (Reserve 2005b: p. 18).

City of Rocks Cultural Landscape Inventory

This inventory documents the physical development, condition, landscape characteristics, and character-defining features of the Reserve, as well as other valuable information useful to Reserve management. The results of the inventory present the overall condition of the City of Rocks National Historic Landmark and stabilization measures necessary to preserve those features. The Idaho State Historic Preservation Officer has concurred with the analysis (NPS 2008a).

Climate Friendly Parks: City of Rocks National Reserve Action Plan

This plan identified the sources of carbon emissions in the Reserve, including ways to reduce these sources (Reserve 2010c).

Circle Creek Overlook Parking Lot Relocation (City of Rocks) Finding of No Significant Impact

The purpose of this project was to remove the existing parking area from the viewshed of the California National Historic Trail and

from private property, as well as to improve the character of the historic viewshed associated with the California Trail cultural landscape. The project also addressed safety issues associated with traffic flow and resource impacts on vegetation (Reserve 2011).

Circle Creek Overlook Trails Project Finding of No Significant Impact

This project included construction of the Geological Interpretive Trail to assist staff in educating visitors about the nationally significant geology of the Reserve. Modifications to the Equestrian Trail were also made to remove horses and riders from the City of Rocks Road and the Circle Creek Overlook Road to eliminate potential conflicts between vehicles and horses and riders (Reserve 2011a).

Northern Rocky Mountains Invasive Plant Management Plan Finding of No Significant Impact

Developed for 10 national parks located in the northern Rocky Mountains, including City of Rocks, implementation of this plan will reduce the adverse effects of nonnative invasive plants on native plant communities and other natural and cultural resources (NPS 2011).

OTHER NATIONAL PARK SERVICE PROJECTS

Additional Routes of the Oregon, Mormon Pioneer, California and Pony Express National Historic Trails Feasibility Study

This study addressed 64 individual routes in more than a dozen states from the Mississippi River to the Pacific Coast and was authorized under the Omnibus Public Lands Management Act (PL 111-11) on March 30, 2009. The California National Historic Trail was established in 1992 and its current authorized length is 5,665 miles. A preliminary set of draft alternatives has been developed.

BUREAU OF LAND MANAGEMENT PLANS

Castle Rocks Climbing Finding of No Significance Impact

The proposed action in this plan would have allowed for permitting and establishment of new climbing routes, placement of bolts, and construction of nearly 2 miles of new trails in the BLM-managed portion of the Castle Rocks Interagency Recreation Area. This area currently contains approximately 0.8 miles of existing trails. There are an estimated 33 rock formations of interest to climbers. Approximately 20 climbing routes on these formations already have bolts or webbing slings, placed on climbing routes before a Bureau of Land Management moratorium on bolted climbing routes was enacted. There are also approximately 20 free or traditional climbing routes.

The Bureau of Land Management decided to close its lands in the Castle Rocks area to climbing of all types and to prohibit overnight camping or construction of new trails. Other alternatives would have had the potential to cause adverse cumulative effects on historic properties. In August 23, 2011, the Bureau of Land Management published a notice of intent in the *Federal Register* to prepare a resource management plan amendment and associated environmental assessment to consider the permanent designation of no climbing, no staging, no camping, and no construction of new trails on BLM-managed lands at Castle Rocks Interagency Recreation Area and at Cedar Fields.

Cassia Resource Management Plan

BLM lands in and around the Reserve are included in Management Area 8 of the *Cassia Resource Management Plan*. In addition to the following management objectives, this resource management plan calls for the preparation of a watershed management plan, habitat management plan, and a City of Rocks Interagency Recreation Area management plan.

The nine resource management objectives outlined in the resource management plan are

1. improve 14,012 acres of rangeland from poor to good
2. provide 1,373 animal unit months of forage for livestock
3. maintain or improve 7,528 acres of crucial mule deer winter range
4. provide forage for the following number of mule deer by season of use: 166 spring; 166 summer; 166 fall; and 473 winter
5. provide year-long forage for 18 pronghorn
6. control surface disturbing activities on 2,512 acres having soils with high-present erosion
7. provide 260 pinyon pine Christmas trees from 1,015 acres for public (noncommercial) harvest annually
8. preserve the geologic, historic, and scenic values of 1,628 acres known as the City of Rocks, thus upholding the integrity of the national natural landmark and national historic landmark designations for the area
9. transfer 120 acres out of federal ownership: 80 via private exchange and 40 via sale or other disposal method

Because alternatives C–D call for boundary expansions that would include some BLM lands included in the 1985 plan, this plan may need future revision, depending on the selected alternative. Mitigation measures applicable to the BLM lands managed by the Reserve would be used by the Idaho Department of Parks and Recreation and the National Park Service (BLM 1985). (See “Related Federal Agency Planning Documents” in chapter 1.)

Potential Geothermal Development of Nearby Areas

In 2002, U.S. Geothermal, Inc., obtained the former U.S. Department of Energy Raft River geothermal facility and began refurbishing the site. The existing wells were cleaned and tested, geophysical surveys were run to further define the geothermal resources, new wells were drilled, financing for the project was obtained, a power purchase agreement was secured, and construction of a new power plant commenced. There are now nine deep production and injection wells at the site. In early 2008, the Raft River site became the first commercial geothermal power plant in the Pacific Northwest. U.S. Geothermal, Inc., has a 20-year contract with Idaho Power to supply 10 megawatts of electricity under this phase 1 project and believes that its 8.2-square-mile lease position has a production capacity of 110 megawatts—about 10% of the energy output of a coal-powered power station.

In June 2007, the Bureau of Land Management leased four parcels (7,164 acres) in the project area. U.S. Geothermal acquired one of these parcels, and Aqua Caliente (Colorado) acquired the other three parcels. Companies from as far away as Iceland have shown interest in Idaho’s geothermal power potential.

U.S. FOREST SERVICE PLANS

Sawtooth National Forest Land and Resource Management Plan

The purpose of this plan is to provide management direction to ensure sustainable ecosystems and resilient watersheds that are capable of providing a sustainable flow of beneficial goods and services to the public (USFS 2005). (See “Related Federal Agency Planning Documents” in chapter 1).

STATE OF IDAHO PLANS

State Trust Lands Asset Management Plan

Management goals for state trust lands established by this plan include:

- Protect and enhance the value and productivity of the land assets.
- Maximize financial returns from land assets over time.
- Encourage a diversity of revenue-producing uses of land assets.
- Manage land assets prudently, efficiently, and with accountability to the beneficiaries (ISBLC 2007).

(See “Related Federal Agency Planning Documents” in chapter 1.)

Castle Rocks State Park Master Plan

The selected alternative was a modified high-level management alternative. It calls for a new visitor center to be shared with the Reserve and additional camping opportunities. As envisioned, both actions would take place at the Smoky Mountain Unit and would be developed in collaboration with the National Park Service. Depending on the alternative in this GMP and the proposed boundary of the Reserve, these actions have been modified in some alternatives (IDPR 2006). (See “Related Federal Agency Planning Documents” in chapter 1.)

CASSIA COUNTY PLANS

City of Rocks Back Country Byway: Rural Heritage Stewardship Handbook and Byway Management Plan

This plan advocates maintaining the rural agricultural landscape along the back country byway.

According to the back country byway plan:

The City of Rocks National Reserve is the linchpin for the Byway. It is where the most areas of historic and geologic interest are protected and accessible by the public. It is the major drawing card for visitors to the area. But without the openness of the surrounding areas, it would be isolated from its historical and visual context. Having a living, functioning agricultural landscape around the Reserve strengthens its integrity. Having a well-managed Reserve strengthens the sense of place of southern Cassia County. Together, these elements preserve something that has disappeared from many parts of our country, but remains pivotal to the identity of our nation (Cassia 1998: p. 7).

Cassia County Code: Historical Preservation Zone

According to the Cassia County Code:

The purpose of the historical preservation zone is to designate the City of Rocks National Reserve, as well as such other areas as are designated by the planning and zoning commission, as areas of great historical significance that should be preserved and protected for the benefit and education of future generations. The intent of the historical preservation zone is to preserve and protect the geologic features, the rocks and remnants associated with the California and other trails, the historic sites and current ranching activities that contribute to an historic western rural setting and the scenery, mystery, and silence of the landscape, as

well as to manage recreation in these areas to ensure preservation and protection of resource values, while the planning process continues (Cassia County n.d.).

According to this ordinance, development should be limited to uses existing between 1850 and 1988 and can include public facilities and owner or heir residential development meeting architectural design criteria with a permit (see “Related Federal Agency Planning Documents” in chapter 1).

Cassia County Design Guidelines

These design guidelines analyze the essential elements of the visual landscape of the area and propose a set of strategies to encourage and assist future development within the City of Rocks National Reserve and along the designated historic loop route (City of Rocks Back Country Byway), in a manner compatible with traditional landscape and architectural patterns. Issues addressed include densities of development, setbacks and siting of built elements, massing and grouping of structures, architectural appearance, signage, and planting design (Timmons 1995). (See “Related Federal Agency Planning Documents” in chapter 1.)

PRIVATE DEVELOPMENT PLANS

Existing Water Development and Other Infrastructure Related to Grazing

These include approximately eight dams, three stock ponds, and numerous spring head boxes with associated piping, as well as nonhistoric fence lines, corrals, and other structures located on both public and private lands within the Reserve boundary and within proposed expansion areas considered in the alternatives.

Gateway West Transmission Line Project

The Bureau of Land Management considered an alternative alignment for the transmission lines that would pass between City of Rocks and the Utah border, then turn north and follow the Goose Creek drainage (as suggested by Cassia County). The BLM-preferred route crosses

Cassia County north of the East Hills, and then crosses the Golden Valley between Oakley and Burley. The Record of Decision was issued by the Bureau of Land Management for this project on November 14, 2013. The route authorized in the Record of Decision is the BLM-preferred alternative as presented in the final environmental impact statement for segments 1–7 and segment 10 (BLM 2013a).

CLIMATE CHANGE

Climate change is defined by the United Nations Framework Convention on Climate Change as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (UNFCCC 1992). In recent years, scientific data have shown that human influence on climate systems is taking place, and evidence of climate change has already presented itself.

Climate change is a far-reaching and long-term issue that will affect the Reserve and its resources, visitors, and management beyond the scope of this GMP’s 15- to 20-year time frame. Although some effects of climate change are considered known or likely to occur, many potential impacts are unknown. Much depends on the rate at which temperature will continue to rise and whether global emissions of greenhouse gases can be mitigated before serious ecological thresholds are reached. Climate change science is a rapidly advancing field and new information is being collected and released continually. Because the drivers of climate change are largely outside park control, the National Park Service alone does not have the ability to prevent climate change from happening. The full extent of climate change impacts on resources and visitor experience is not known, nor do managers and policy makers yet agree on the most effective response mechanisms for minimizing impacts and adapting to change. Thus, unlike some other issues, this GMP does not provide definitive solutions or directions to resolving the issue of climate change or controlling impacts of climate change on City of Rocks National

Reserve. Rather, the plan provides some general directions and strategies that can help minimize the park's contribution to greenhouse gas emissions associated with global warming and also identifies potential areas of climate vulnerability in order to help guide resource management. The GMP also recognizes that management actions and facilities proposed in the alternatives need to be adopted with future climate change and impacts in mind.

Climate Change in National Parks

Climate change has already had noticeable impacts on both natural and cultural resources within NPS-managed lands nationwide. Conditions for sustaining the health and prosperity of animal and plant habitats as well as glacial, marine, and wetland ecosystems have diminished over time. Changing patterns of weather and natural hazards such as flooding and wildfires have damaged habitat areas and cultural resource sites. Invasive species of plants and pests, such as bark beetles, are encroaching into areas where they had not previously survived, threatening native plants as well as the animals that rely on those plants for food and shelter. A 2009 report by the Rocky Mountain Climate Organization and the Natural Resources Defense Council identified loss of water, loss of ice and snow pack, increased flooding, loss of plant and wildlife species, intolerable heat, and increased air pollution as potential climate change effects that could impact a unit such as City of Rocks National Reserve (RMCO 2009).

In response to the increasing need for understanding and action related to climate change impacts in the parks, the National Park Service launched the Climate Friendly Parks Program. This program enables the bureau to educate its staff about climate change issues, assess the park's contribution to greenhouse gas emissions, create short- and long-term strategies for reducing emissions, determine potential effects of climate change on park resources, and develop skills and strategies for communicating these effects to the public. City of Rocks National Reserve is a participant in the Climate Friendly Parks program and is currently developing a climate action plan.

Regional Projections

Climate change projections for the western United States consistently show a trend toward warmer, drier conditions. Western states, including Idaho, are expected to experience more pronounced warming than the rest of the country. Between the years 2003 and 2007, five-year average temperatures for the state of Idaho increased by approximately 1.8°F compared to 20th-century averages (Saunders et al. 2008).

City of Rocks National Reserve is situated at the northern edge of the Great Basin Desert. Within the Great Basin, a trend toward increased average temperature has already been measured. An average temperature increase of 0.5°F to 1.1°F (0.3°C to 0.6°C) was observed in the Great Basin over the course of the 20th century. During this period, the probability of very warm years increased and the probability of very cold years declined (Wagner 2003; Chambers 2008). Average April 1 snowpack in south-central Idaho declined as much as 30% between 1950 and 2002 (USGCRP 2009). Reduced winter snowpack has already led to severe drought conditions in Idaho and associated impacts on water supply and agriculture. Between 2000 and 2002, such a drought resulted in a 12% reduction in the statewide potato harvest. These drier conditions are also linked to an increase in wildfire hazard. In 2007, low snow pack and record summer heat waves were followed by rampant wildfire that destroyed sage grouse habitat and led to the cancellation of Idaho's sage grouse hunting season (Saunders et al. 2008).

The Great Basin is expected to warm by 4.5°F to 8.5°F during the 21st century compared to the 1971–1999 reference period (Kunkel et al. 2013). Warmer temperatures and decreased humidity are expected to result in a longer fire season (Barnett et al. 2004; Brown, Hall, and Westerling 2004). Increasing temperatures and drought stress on forests in the Sawtooth Mountains have made the area vulnerable to an outbreak of mountain pine beetle, which can result in widespread death of forest trees and increased risk of forest fires (USGCRP 2009). Pygmy rabbits may disappear from low-elevation sites

as they lose habitat to wildfires and vegetation shifts and seek cooler temperatures at higher elevations (Larrucea and Brussard 2008).

Potential climate change effects that have been identified as management issues for the Reserve include increased frequency of wildfire and/or increased area burned; flooding and erosion caused by changes in seasonal runoff; reduced water availability for drinking, irrigation, and other uses; and potential shifts in visitor patterns due to changes in the warm season.

PHYSICAL RESOURCES: LAND USE

a. Land Use Methodology

Methodology: Land use analysis was based on a quantitative and qualitative assessment of the potential changes to lands within the project area encompassed by the alternatives. The amount of undisturbed natural landscape / recovering landscape was compared to proposals for potential new development and changes associated with existing projects and development.

Type of impact: Land use changes considered include converting undeveloped land to developed land and designating undeveloped or restored lands as public lands for additional protection. The extent to which an area has been previously impacted by human activities is also considered. Beneficial impacts would result from protection of undisturbed land and restoration of lands now developed to natural conditions. Adverse impacts would result from new development in previously undisturbed areas. Indirect impacts could include rezoning that would allow for additional development.

Impact Intensity

Negligible	Measurable or anticipated degree of change would not be detectable or would be slightly detectable and localized.
Minor	Impacts would be slightly detectable or localized within a small portion of the project area.
Moderate	Measurable or anticipated degree of change is readily apparent and appreciable, may be localized or widespread, and would be noticeable.
Major	Impacts would be substantial, highly noticeable, and widespread. Changes to the character of the landscape would occur.

b. Impacts on Land Use

TABLE 41. COMPARISON OF ZONING BY ALTERNATIVE

Alternative (area / acres/ percent of total)	Zone or Area					
	California Trail	Research Natural Zone	Natural Zone	Historic Rural Setting Zone	Visitor Facilities and Access	Transition
Alternative A	Foreground: 3,148 (21.6%)* General 1,254 (8.6%)	RNA Area 315 (2.2%)	General Natural 2,359.6 (16.2%) Natural and Recreational Resource Area 1,190.7 (8.2%)	Historic Rural Setting Zone 5,836.3 (40.1%)	Public Use and Development (roads) 134 (0.9%)	N/A Not Zoned 443.7 (3%)
Alternative B	3,481 (23.9%)	491.4 (3.4%)	6,784.4 (46.6%)	3,456.3 (23.8%)	98.6 (0.7%)	232.5 (1.6%)
Alternative C	4,128.2 (28.4%)	661.6 (4.5%)	7,568.1 (52%)	1,873.7 (12.9%)	99.8 (0.7%)	212.7 (1.5%)
Alternative D	2,884.5 (19.8%)	same as B	7,434.7 (51.1%)	3,041.9 (20.9%)	296.3 (2%)	395.3 (2.7%)

*Information shown is based on acreage and percent of the total Reserve that the identified acreage would comprise.

ALTERNATIVE A IMPACTS

There would be no additional impacts on land use except those associated with new construction called for by the Reserve's 1996 comprehensive management plan (Reserve 1996a). Zoning would remain the same, and there would be no boundary modifications either for the Research Natural Area or for the Reserve.

Under alternative A, the Reserve would continue to contain the following major zones, subzones, and areas:

- Historic and Natural Preservation Zone
 - » California Trail Subzone (including both a General Use area and a Foreground of California Trail)
 - » Natural Area Subzone (including the Research Natural Area, General Natural Area, and Natural and Recreational Resource Area)

- Historic Rural Setting Zone
- Public Use and Development Zone (see "Figure 5: Alternative A: No Action Alternative" in chapter 3 for a description of these areas)

New parcels (443.7 acres) added since the comprehensive management plan are not officially zoned. The existing array of zones would continue to guide Reserve management. This would constitute a minor to moderate long-term beneficial effects by ensuring that the most significant resources are preserved within an adequate area (including buffer areas) and by allowing development of appropriate areas that would accommodate visitor use while having no effect on important natural and cultural resources. Although it is likely that unzoned areas would be managed similarly to nearby zoned areas, it is possible that not zoning some areas of the Reserve could have negligible to minor adverse effects. These effects could come from potential future uncertainties in management of these areas when new activities are proposed or management options generated.

Development of the proposed visitor center complex as described in the Reserve's comprehensive management plan and the *Castle Rocks State Park Master Plan* would include an approximately 9,500-square-foot visitor center that would contain a lobby, a 70-seat theater, exhibit space and museum, administrative office space, administrative and public restrooms, a 25- to 30-seat multipurpose room, parking for 35–45 cars, and a staffed entrance station. Approximately five acres would be needed to develop this facility, which would actually be smaller than called for in the comprehensive management plan, because administrative/maintenance facilities would continue to be located on land owned by the Idaho Department of Parks and Recreation instead of developed as part of the visitor center complex. Overall impacts would be localized and moderate from this additional development on what is now part of an open landscape near the entrance to Smoky Mountain Campground.

Additional development under alternative A would also include another 62-unit campground to complete the 100-site campground called for by the comprehensive management plan (Reserve 1996a: p. 59). Based on an average development of a generous five sites per acre, there could be another approximately 12.5 acres developed at Smoky Mountain Campground for these sites. Because a portion of this area is developed and much of it has been previously disturbed by grazing, and because there are sensitive resource areas that would need to be avoided, effects on land use would be minor to moderate and localized.

ALTERNATIVE B IMPACTS

In alternative B, there would be a different, but similar array of zones ("Figure 6. Alternative B: Silent City of Rocks"):

- Natural Zone
- Historic Rural Setting Zone
- Research Natural Area Zone
- Visitor Facilities and Access Zone
- Transition Zone
- California Trail Zone

Descriptions of these zones can be found in "Chapter 3: Alternatives."

Compared to alternative A, expansion of the Natural Zone would increase protection for lands that otherwise could be considered for potential development of some small-scale visitor facilities. The larger Natural Zone in alternative B could also allow more opportunities for self-directed experiences with fewer amenities, as envisioned by this alternative's concept. Protecting a larger area from development effects (aside from trails and some existing primitive administrative roads) would have minor to moderate long-term beneficial effects on land use.

Compared to alternative A, where the Historic Rural Setting Zone encompassed most of the private lands in the Reserve, the reduction in the Historic Rural Setting Zone would focus this zone more on encompassing traditional grazing areas consistent with the alternative B concept.

The California Trail area would now be a zone and would be similar to its extent in alternative A but expanded primarily to the south and southeast, taking in not just the immediate features in the foreground (as in alternative A) but also some views toward other notable areas and resources within the national historic landmark. The national historic landmark also includes related archeological sites. This more defined area encompassing nationally significant resources would have a long-term beneficial effect on land use by preserving additional areas associated with the California National Historic Trail.

Compared to alternative A, expansion of the Research Natural Area and its designation as a zone would focus the purposes of the zone. The revised zone boundary would improve management of the area by aligning it with the natural contours of the landscape, such as the northern ridgeline, in lieu of the current mapped section line that does not conform to natural terrain boundaries and cannot be detected as easily in the field. Alternative B (and D) would relocate the RNA boundary to encompass additional areas identified as possible expansion areas by a 2010 research study of the Research Natural Area (Bell and Barton 2010). The boundary of the Research Natural Area would be expanded primarily to the south and east, and there would be modifications to eliminate the unintentional small overlap between it and an existing grazing allotment. Because additional resources would be protected within the boundary of the Research Natural Area Zone and no additional development would be allowed (aside from trails and traditional and existing sport climbing routes), there would be long-term negligible to minor adverse effects on land use associated with continued use for research, hiking, and climbing, and moderate localized long-term beneficial effects from enhancing and expanding protection of this area.

In alternative B, the General Use Subzone from alternative A becomes part of the Historic Rural Setting Zone to further define its use, a negligible to minor long-term beneficial effect. The Historic Rural Setting Zone would include areas to facilitate traditional ranching. Overall development within this zone would continue to be minimal, but could include trails, fencing, corrals, water troughs, signs, and waysides.

Whereas the purpose of the Natural and Recreational Resource Area Subzone from alternative A was to balance protection of natural and recreational resources, it would be divided into its component parts in alternative B. In alternative B, parts of the subzone would be divided between the Visitor Facilities and Access, Transition, Natural, and Historic Rural Setting Zones, and a smaller area of the subzone

would be identified for potential development. Separating these areas to focus on protecting their important characteristics and minimizing the potential for additional development would have a minor long-term beneficial effect on land use.

The Visitor Facilities and Access Zone would include the roadway and major developed areas, such as the campsites and primary parking lots, as well as adjacent areas needed to accommodate maintenance activities. It would also include climbing routes where bolts occur, picnic areas, corrals, existing and proposed kiosk areas, and utilities. Although additional development would occur and would contribute negligible to moderate short- and long-term adverse effects in this zone, focusing development in a smaller area, compared to alternative A, would have minor to moderate localized long-term beneficial effects. Although no new visitor facility would be constructed, alternative B would include development of an additional camping area in Smoky Mountain Campground; construction of an amphitheater and new trail connections; a new equestrian staging area; and reconfiguration of the Reserve campsites based on the recommendations of the *Rim Development Concept Plan for City of Rocks National Reserve* (Rim DCP), including new parking, new campsites, campsite closures, and new picnicking and trail connections (Reserve 2012).

The Transition Zone would encompass some minor developed areas, such as the Finger Rock area and other walk-in campsites, fencing, climber staging areas with bolted routes, and primitive administrative roads. As with other action alternatives, it would also include some new campsites proposed by the Rim development concept plan. The Transition Zone also provides an indirect buffer alongside the Natural Zone in some areas, though it primarily includes the Rim area beyond the Rim campsites, including dispersed campsites. Because it would essentially provide for a less-developed area compared to the Visitor Facilities and Access Zone, it would indirectly allow for more primitive experiences. As with the Visitor

Facilities and Access Zone, focusing these activities in a more defined area would have variable minor adverse and minor to moderate long-term beneficial effects on land use.

ALTERNATIVE C IMPACTS

As in alternative B, there would be long-term beneficial effects from preservation of the Reserve's significant resources and from flexibility to implement the proposed management actions in alternative C.

Compared to alternative A and consistent with the concept of this alternative, alternative C would have a much larger Natural Zone that would include one of the northernmost old growth pinyon-juniper forests in Idaho, some recently burned areas undergoing natural regeneration, the Indian Grove area, and some current higher-elevation grazing areas. Protection of these areas through zoning would have indirect minor to moderate long-term beneficial effects.

The Research Natural Area Zone would be enlarged to include most of the candidate additions recommended by a recent study of the area, without encroaching on existing grazing allotments. The larger Research Natural Area Zone would comprise a broader elevational range of old-growth pinyon-juniper forest and habitat for some Idaho Sensitive Species (cliff chipmunk and pinyon mouse). As in alternative B, the RNA boundary would follow natural barriers to the extent possible. Similar to alternative B, there would continue to be negligible to minor adverse effects from existing research and recreational activities, combined with localized minor to moderate long-term beneficial effects from protecting a larger area from development.

The California Trail Zone in alternative C would also be larger than in alternative A because it would be expanded to the west to encompass key resources, such as middle-ground viewsheds that are not currently protected for this purpose. This California Trail Zone is the largest among the alternatives because it includes all of the viewshed that emigrants would have seen within

the basins that comprise City of Rocks (Circle Creek, Twin Sisters, Tracy Lane, and Emigrant Canyon). In this alternative, the California Trail Zone boundary was also modified to allow for the existing array of climbing opportunities to continue at current levels on nearby rocks; however, climbing would continue to be prohibited on the Twin Sisters formation. By definition, the California Trail Zone would be closed to traditional and sport climbing, but not scrambling, which is probably compatible with historic use by the emigrants.

As in alternative B, the Historic Rural Setting Zone would be smaller because it would focus on those areas currently used for ranching activities. This zone would encompass lower-elevation grazing areas, including some sagebrush steppe communities to create a compatible visual setting for the California Trail Zone. As a result there would be long-term beneficial effects on land use by limiting development and enhancing the setting through application of the Historic Rural Setting Zone.

The Visitor Facilities and Access Zone would be slightly larger than in alternative B and would generally include the same major developed visitor use areas, such as the road, parking areas, trailheads, restrooms, and campsites. Similar to alternative B, there would be a variety of adverse and beneficial effects, depending on whether or how additional campsite and picnic area development occurred. As in alternative B, although additional development would occur to implement the recommendations from the Rim development concept plan, other areas would be closed and restored.

In alternative C, additional development would include the proposed visitor center, equestrian staging area, campground improvements, Rim DCP implementation, an outdoor learning center, and an amphitheater. Overall these actions would contribute negligible to moderate short- and long-term adverse effects in this zone; however focusing this development in a smaller area, compared to alternative A, would result in a minor to moderate localized long-term beneficial effect.

The Transition Zone in alternative C would also be similar to alternative B and includes dispersed campsites and the Inner City area. (The Inner City references the area encircled by the edge of the rocky rim on the south and west sides. It is the area where streams are steeper and the stream pattern is denser, creating a maze of rugged vertical topography in a geographically small area). As in alternative B, it would provide an indirect buffer zone between the Visitor Facilities and Access and Natural or other zones, a minor indirect long-term beneficial effect.

The proposed boundary expansion areas in alternatives C–D would probably become part of several zones, including the California Trail, Historic Rural Setting, Visitor Facilities and Access, and Natural Zones. Of these, the development of the visitor center and expansion of Smoky Mountain Campground would have the minor to moderate localized adverse and beneficial effects on land use described above. Other areas would not be developed and therefore would be protected as part of their respective zones, and land use could remain similar to that currently occurring (for example, grazing areas on BLM-managed lands, depending on the provisions in the agreement or legislation that authorized the expansion).

Boundary modifications would enhance protection for scenery and ranching areas near the east entrance of the Reserve; enhance protection for portions of the California National Historic Trail, including geologic formations in the Cedar Hills and Sparks Basin (viewshed protection); protect old-growth pinyon-juniper forest near the current east boundary; and include Smoky Mountain Campground, BLM-leased R&PP land now managed by the Idaho Department of Parks and Recreation. Compared to alternative A, there would be more land within the Reserve that would be preserved in perpetuity in its natural state or for Reserve use, a long-term beneficial effect on land use. Of the approximately 4,247 acres that would be included in a boundary expansion, slightly more than 15% would be private (consisting of two private parcels) and nearly 85% would be public. As in alternative B, scenic easements from willing sellers could be

used to protect areas in the southwest corner of the Reserve. Overall, if these areas were added to the Reserve, there would be long-term beneficial effects on land use from protection of additional important natural, cultural, and recreational resources, combined with long-term minor to moderate adverse effects from additional development of currently leased BLM lands at Smoky Mountain Campground, and for development of the proposed visitor center on current BLM land.

Adding some current BLM-managed lands to the Reserve would result in these lands being withdrawn from the potential for mineral extraction and other multiple use management activities (such as tree cutting). Instead these expansion lands, if approved, would be protected by NPS ownership for preservation, public use, and ongoing grazing, dependent on the transfer agreement or legislation authorizing the boundary expansion and/or whether permittees elected to participate in the grazing buyout program. These uses would be consistent with the purposes of the Reserve and the NPS mission and would therefore be different than the purposes of BLM-managed lands.

Proposed boundary expansion areas would probably become part of the Visitor Facilities and Access and Natural Zones. In addition, another 1.1 miles of the California Trail would be added to City of Rocks National Reserve with the proposed boundary modification on the east side of the Reserve, providing better protection to this area, including from development effects such as from mineral extraction, a minor to moderate long-term beneficial effect. The expansion would also place Smoky Mountain Campground and IDPR leases within the Reserve, allowing for cost-sharing for continued development and management of this recreational facility that supports Reserve operations. Currently the boundaries of the Reserve and of the Smoky Mountain lease are difficult to fence, sign, and communicate to visitors and agency personnel because the jurisdictional boundaries (along topographic section lines) contain steep slopes and align at right angles over rugged mountain terrain (Keck 2012).

ALTERNATIVE D IMPACTS

Impacts from alternative D would generally be similar to alternative B. Compared to alternative A, the Research Natural Area and Natural zones would be expanded. Compared to alternatives B and C, there would be larger Visitor Facilities and Access and Transition Zones to accommodate more intensive day use and more camping as emphasized by this alternative. Although the California Trail Zone would be slightly reduced compared to alternative A, it would include a larger area to the northwest. These modifications would offer more protection than in alternative A to both historic and natural resources, a long-term beneficial effect.

The expanded Research Natural Area Zone would be the same as in alternative B. Compared to alternative B, the Natural Zone in this alternative would focus on forested areas, while the Historic Rural Setting Zone would include more open rangeland within existing grazing allotments but would avoid heavily wooded areas. The California Trail Zone would essentially remain a half-mile-wide corridor along the road that would also include the Circle Creek Basin and Twin Sisters. Although it would be expanded over alternative A and similar to alternative B, it would be slightly smaller than in alternative C. Despite the smaller size, compared to alternative C the increase in the California Trail Zone would nonetheless provide long-term minor beneficial effects to those additional areas it encompassed.

Long-term beneficial impacts from the boundary expansion—including protection of more of the California National Historic Trail, geologic formations, and old-growth pinyon-juniper forest—would be the same as in alternative C. Similarly, there would be long-term minor to moderate localized adverse effects from additional development of IDPR-leased BLM lands at Smoky Mountain Campground and for development of the proposed visitor center on current BLM-managed land.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on land use (as appropriate to the alternative) would include the following:

- Zone boundary expansion lands for protection, except for additional development at Smoky Mountain Campground, for the visitor center (if applicable), and for the summit trail.
- Design new buildings, constructed with NPS support, to a minimum silver level of Leadership in Energy and Environmental Design (LEED) certification in accordance with NPS Management Policies 2006.

CUMULATIVE IMPACTS

Actions have occurred within and near the Reserve that have both increased the amount of undeveloped land (such as restoration or loss of structures) and decreased it (such as construction of administrative and recreational facilities). Since establishment of the Reserve in 1988, more land has been protected within it, a cumulative beneficial effect.

Past actions that have added to the adverse cumulative effects of development include the creation of recreational facilities by the U.S. Forest Service, Bureau of Land Management, and Idaho Department of Parks and Recreation / National Park Service, such as trails, campgrounds, and bolted climbing routes. Restoration or decreased use in some areas, such as recontouring and restoring the former borrow pit near the Reserve entrance sign, has had beneficial cumulative impacts. In addition, a variety of private landowner actions on existing private land, and on private land that has later become part of the Reserve, have contributed to cumulative effects. These actions include farming, ranching, and development associated with these lands, such as for water and home sites.

Present actions that would also contribute to cumulative effects include plans for additional development of recreational facilities by the Idaho Department of Parks and Recreation,

such as the proposed joint Reserve and Castle Rocks State Park visitor center and the additional campsites proposed for Smoky Mountain Campground. Nearby, in its Castle Rocks Interagency Recreation Area, the Bureau of Land Management has recently decided to close climbing routes and to not increase the number of bolted rock climbs or allow the construction of additional trails or camping originally evaluated in the environmental assessment. The Bureau of Land Management and U.S. Forest Service would also continue to implement their respective plans for areas adjacent to the Reserve, resulting in a variety of ongoing and new multiple-use resource management and public use projects (such as grazing, mining, tree and other resource harvest) (BLM 1985, USFS 2005). Concurrently, the Idaho Department of Parks and Recreation has begun to develop additional lodging opportunities in existing (Castle Rocks State Park) or new structures (yurts at Smoky Mountain Campground). These actions have had a wide range of minor to moderate cumulative beneficial and adverse effects.

Future proposed actions that would affect land use within and in the vicinity of the Reserve include multiple-use, resource management, and public-use projects conducted by the Bureau of Land Management and U.S. Forest Service; proposed energy development projects outside the Reserve (wind, electric, and geothermal); recreational development within or outside of the Reserve as described in this plan; restoration of areas, such as the Circle Creek impoundment; and ongoing use of private lands within and outside the Reserve. These actions would probably include additional construction of buildings and structures, as well as other changes in native vegetation. It is also likely that implementation of alternatives C or D in this GMP would cause the Bureau of Land Management to need to update its resource management plan for adjacent lands because some of the lands included in the current management plan could be transferred to the National Park Service. If this occurred, it could result in divided responsibilities associated with grazing allotments and/or a change in

other existing or planned uses of those lands, with respective minor to moderate long-term beneficial and adverse effects.

When the impacts associated with alternative A are added to impacts from the above past, present, and future actions, there would be ongoing minor to moderate cumulative adverse and minor to moderate beneficial effects on land use. Similarly, when the effects of the action alternatives (B–D) are added to impacts from past, present, and future actions, there would be minor to moderate cumulative adverse and moderate beneficial impacts on land use.

CONCLUSION

Alternative A would have minor to moderate long-term beneficial effects from continuing use of zones to manage lands within the boundary of the Reserve and minor to moderate localized adverse effects from additional development of a visitor center facility and additions to Smoky Mountain Campground. Overall, zoning changes in alternative B would improve protection of the significant resources in the Reserve by facilitating the array of management actions envisioned by this alternative. Compared to alternative A, the zones in alternatives B–D follow fewer jurisdictional boundaries than in the comprehensive management plan and are therefore more aligned with actual use, significance of resources, and/or natural terrain features, such as ridgelines and watersheds. As a result, portions of the Reserve would become easier to manage because zones would be better aligned with key resources, a minor to moderate long-term beneficial effect.

Compared to alternative A, alternatives B–D would preserve more land within the Reserve in perpetuity in its natural state, a long-term moderate beneficial effect. Where lands were modified for Reserve use, there would be long-term minor to moderate adverse effects. Zoning in alternatives C–D would also result in the opportunity for planned recreational facility development in smaller areas than in alternative A, as well as additional preservation of the California Trail and other cultural and natural resources. Expansion of the Research

Natural Area Zone to match terrain boundaries in alternatives B and D and to encompass additional areas that have been identified as important to the area landscape in alternative C would also have minor to moderate long-term beneficial effects on land use from preserving these areas within the Reserve and/or improving the ability to manage these areas. The development called for in alternatives B–D, including for new visitor facilities, would have minor to moderate localized adverse effects. Because there is slightly more development proposed in alternative C and a greater potential for more development in alternative D because of the much larger Visitor Facilities and Access Zone, these alternatives could have comparatively greater effects on land use. All alternatives, however, would accommodate a range of new visitor facilities, a long-term minor to moderate adverse effect on land use.

PHYSICAL RESOURCES: AIR QUALITY

a. Air Quality Methodology

Context of impact: Air quality impacts were considered within City of Rocks National Reserve, on IDPR-leased land and IDPR-owned land and within the region.

Type of impact: Beneficial effects would reduce pollutant emissions or lower pollutant concentrations, while adverse effects would increase them.

Impact Intensity

Negligible	There would be no measurable effects on air quality. Criteria pollutants would be within National Ambient Air Quality Standards (NAAQS). No perceptible visibility impacts are likely (no visible smoke, plume, or haze).
Minor	Effects on air quality would be measurable but would be short-term and localized and within NAAQS. Perceptible visibility impacts occur, but are visible from a small area of the Reserve, are of short duration (less than one day per year), and are visible to a few Reserve visitors on the days that they occur.
Moderate	Effects on air quality would be measurable and short-term and could be either localized or widespread. Combined with regional impacts, NAAQS would not be exceeded. Perceptible visibility impacts occur and are visible from several areas of the Reserve, occur between one and several days per year, and many Reserve visitors may observe them on the days that they occur.
Major	Effects on air quality would be measurable and would be long-term and localized or widespread. NAAQS would be exceeded 80% of the time. Perceptible visibility impacts would occur and are visible from many areas of the Reserve, occur many days over the course of a year, or are visible to a majority of Reserve visitors on the days that they occur.

b. Air Quality Impacts

Background

Based on interpolated data, as well as limited onsite ozone monitoring, air quality within the Reserve is considered moderate, with a potential risk to vegetation from ozone effects if the data are accurate. Most air quality monitoring, however, is from ambient air quality measurements conducted outside the Reserve (for particulate matter, nitrogen dioxide, sulfur dioxide, nitrates, sulfates, and ozone), including some measurements from as far away as Logan and Salt Lake City, Utah. Therefore, air quality within the Reserve is much better. Locally, air quality can be affected by vehicle emissions, dust from unpaved roads, campfires, wood-burning

heating devices, administrative operations, herbicide treatment of nonnative invasive plants, wildfires, and weather conditions that may cause temperature inversions.

Effects from proposed actions under the alternatives would generally be localized and of short duration and would not affect adherence to NAAQS within the Reserve. Nonetheless, there are a variety of emissions that would occur or continue to occur as a result of ongoing Reserve operations, including earth movement (generally associated with clearing and grading, construction/demolition, and vegetation clearing and restoration); exhaust emissions (from transportation, maintenance activities, and vehicles); and evaporative emissions (from paints and solvents, treatment of nonnative invasive plants, and other day-to-day maintenance and construction activities).

ALTERNATIVE A IMPACTS

Ongoing impacts from travel to and within the Reserve would continue. Among these impacts include those from idling while searching for a campsite or parking space and emissions associated with vehicle touring through the Reserve, such as idling at wayside exhibits and travel to visitor use sites. The proposed expansion of Smoky Mountain Campground, which could include approximately 62 additional campsites, would have minor to moderate localized adverse effects on air quality from campfires and from encouraging additional travel to and within the Reserve. Ongoing fire suppression could also result in larger wildfires and accompanying short-term minor to major adverse effects on air quality.

Ongoing air quality programs would continue to have no effect on private landowners in the Reserve. Continuing efforts to minimize air pollution from Reserve operations could include reducing the amount of driving/idling during current activities; opting to purchase and use hybrid, low-emissions, or electric vehicles if authorized by the Idaho Department

of Parks and Recreation; and other strategies. Implementation of these air quality mitigation strategies could result in long-term negligible to minor localized beneficial effects by reducing the impacts of Reserve operations on air quality.

Ongoing use of magnesium chloride on Reserve roads maintained by Cassia County would continue to reduce dust (particulates) in summer and would therefore continue to have localized beneficial effects on air quality. The application of magnesium chloride, sprayed as a brine (in water) in late spring or early summer, retains moisture in soils and is able to pull moisture from the atmosphere to bind with soils, thereby minimizing the amount of dust that would otherwise be generated by hot, dry conditions and visitor and administrative travel on Reserve roads. Some studies have shown that applications of magnesium chloride are absorbed by unpaved road surfaces and generally cannot be detected three feet beyond the edge of the road (Best 2004).

Recent ozone monitoring and a nitrogen deposition study have also resulted in better understanding of the concentrations and effects of these pollutants on the Reserve. Maps show the Reserve on the edge of a plume of high nitrogen concentrations, indicating that nitrogen deposition was low compared to other monitoring sites in southeast Idaho. If the plume were to increase in size, the Reserve's air quality could be affected. For example, if more confined animal feeding operations were established, the plume could increase. Ozone monitoring has shown the Reserve to be generally unaffected by air pollution from the Salt Lake City and Logan, Utah, urban area, which is notorious in the region for poor air quality (Reserve 2012b). Ongoing monitoring of some air quality parameters would improve knowledge of air quality conditions and trends and continue to provide valuable information for collaborating with outside organizations and groups. Additional monitoring would be particularly important if industrial or other potential polluting activities that could affect air quality in the Reserve were proposed nearby.

IMPACTS COMMON TO ALTERNATIVES B–D

Actions in alternatives B–D that would affect air quality include changes in fire management activities, construction of additional facilities, and improved monitoring of particulates. In general, these impacts would be in addition to those identified under alternative A.

Development of a fuels treatment plan and a burned area emergency response plan could have minor to moderate localized adverse and minor beneficial effects on air quality. Implementation of these plans would reduce potential wildfire damage to the Reserve's natural and cultural resources, protect infrastructure, and reduce potential impacts on adjacent communities. For instance, if fire is used to benefit fire-dependent plant communities in the Reserve and to maintain the natural appearance of the Reserve's landscapes, there could be beneficial effects from reducing air emissions associated with otherwise high-intensity wildfires. This could occur from pre-treatment of hazardous areas through hazard fuel reduction, potentially resulting in wildfires that are smaller and more easily controlled.

Smoke from wildfires is a complex mixture of carbon, tars, liquids, and gases. The major pollutants are particulates, volatile organic compounds (VOCs), and carbon monoxide. Other pollutants, such as mercury and oxides of nitrogen and sulfur dioxide are also produced, but in a relatively small quantity when compared to the major pollutants. Particulates can remain suspended in the atmosphere for a few days to several months and can reduce visibility as well as contribute to respiratory problems. Very small particulates can travel great distances and add to regional haze problems. Regional haze can also result from multiple burn days and/or multiple owners burning within an airshed over a period of time too short to allow for wind-dispersion, resulting in a range of minor to locally moderate adverse effects

Using fire to meet vegetation management resource objectives would result in an additional minor to moderate degree of air quality effects, including particulate emissions and the

possibility of diminished visibility. If 500 or more acres were burned annually, there are models to estimate emissions; however this level of analysis may not be necessary because a smaller amount of annual burning would be more likely to occur. Actual effects and the potential number of acres associated with fire use would be analyzed as part of the revised fire management plan. In general, effects would be localized and would be limited in scope and impact. Fires that did not meet prescriptions would not be ignited or would be suppressed. Each fire would be managed within a predetermined area and, as a result, would be relatively small. Most would be conducted either as research burns to achieve specific resource objectives (for instance burning piles generated by hazard fuel reduction in a specific community to stimulate natural regeneration of native plants), or as actions to decrease the density of nonnative plants not tolerant of fire to meet restoration objectives. Burning of smaller areas also has the potential to reduce the size of future fires, a long-term indirect beneficial effect. Upon development and peer review, Reserve fire plans would undergo additional environmental analysis to determine specific impacts.

Construction of new facilities or restoration of former campsites would also result in short-term minor localized adverse impacts on air quality, depending on the time of year these activities were conducted, on soil moisture conditions, and on the amount of soil moved. Where old buildings and facilities were replaced with new facilities, there would be long-term minor beneficial impacts from using state-of-the-art energy efficient design and construction, such as that associated with heating and cooling and/or appliances and building materials.

Monitoring of particulate matter could provide baseline air quality information and assist the Reserve in determining the extent to which operations would impact air quality, if at all. Anticipating these changes could allow City of Rocks to modify or suggest modifications to reduce particulate emissions from operations, a long-term beneficial effect. Additional beneficial effects would also result from improved knowledge of air resources.

Conveying information about baseline air quality conditions to the public could increase awareness that air quality in the area is generally good to moderate and could engender efforts to protect air quality if nearby industrial sources or activities were proposed. Overall, there would continue to be both beneficial and potential negligible to minor adverse effects and minor to moderate localized effects.

ADDITIONAL IMPACTS FROM ALTERNATIVE B

Impacts would be the same as identified above.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

In addition to impacts identified from alternative A, there would be a greater emphasis on proactive management that would avoid activities that could potentially degrade air quality. Improved understanding of Reserve air quality and efforts to protect it would also occur. Public outreach and education efforts could improve the Reserve's ability to communicate this information. Both activities could also contribute additional indirect negligible to minor long-term beneficial effects.

If outside commercial sources developed a shuttle within the Reserve and/or between the Reserve and Castle Rocks State Park, there could be long-term negligible beneficial effects on air quality. Depending on the number of people who took advantage of the shuttle, shuttle use could potentially reduce emissions associated with individual private vehicle travel to and within these areas.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

Impacts would be the same as in alternative C, except that no shuttle is proposed.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on air quality (as appropriate to the alternative) would include the following:

- Place restrictions on administrative vehicle and equipment idling.
- Use sustainable purchases to reduce the overall carbon footprint at the Reserve.
- Revegetate bare areas associated with construction as soon as possible (upon final grading or when staging areas are no longer in use).
- Minimize the extent of vegetation removal associated with construction.
- Minimize trip generation during construction.
- Use low-VOC paints, solvents, and other chemicals in building construction.
- Use low- or no-emissions heating and cooling devices in buildings.
- Minimize idling of vehicles, construction equipment, and other machinery.
- Purchase and use biodiesel fuel and/or electric vehicles and equipment.

Additional measures related to fire:

- Limit the number of acres and amount of fuel burned annually and identify this in fire plans.
- Select the timing and method of ignition to limit effects on air quality.
- Burn during optimal fuel moisture conditions to limit effects on air quality.
- Increase communication about the use of fire, including cooperating and coordinating with agencies and landowners to limit the number of fires occurring simultaneously.
- Obtain state permits to implement air quality management guidelines.
- Develop fire plans for each fire and include appropriate signage if smoke could affect roadways or designated visitor areas (such as visitor centers or campgrounds).
- Contact the appropriate authorities to identify other measures to limit smoke and to avoid decreased visibility.

CUMULATIVE IMPACTS

Past actions include construction of current Reserve roads and facilities and development of adjacent ranches and nearby towns. Because most of the roads within and near City of Rocks National Reserve are unpaved, and because many roads outside the Reserve or within the Reserve on private property are not treated to reduce dust, there would continue to be long-term, contributing minor cumulative adverse effects on air quality from large particulates. Overall visibility in the region is moderate: nitrogen transport from confined animal feeding operations and activities such as ranching and agriculture combine with local climatic conditions (the region is dry with frequent high winds) to cause a high occurrence of airborne particulates, including dust.

Present actions that could have an impact on air quality include conducting day-to-day Reserve maintenance, administrative, and natural and cultural resource management operations. Such day-to-day activities often consist of vehicle travel for patrolling, visitor contact in campgrounds, and access to long-term monitoring and nonnative plant removal sites. Actions within and outside the Reserve include ongoing ranching and daily activities in surrounding small towns. As a result, there would continue to be a variety of emissions related to vehicles and equipment used in these areas, contributing minor cumulative adverse effects.

Proposed future activities could include replacement or repurposing of visitor facilities, such as the current Reserve visitor center house, as well as improvements to parking areas and roads. These activities would have short-term minor to moderate adverse and long-term negligible to minor beneficial effects.

According to the 2013 Draft National Climate Assessment, a warmer climate is projected to increase summertime ozone concentrations by 1 to 10 parts per billion this century, and ground-level ozone is associated with diminished lung function in people. Climate change is already contributing to an increase in wildfire frequency.

Wildfire smoke contains particulate matter and pollutants that can significantly degrade air quality and negatively affect human health, which can also impact park viewsheds (Kunkel et al. 2013).

The largest sources of air pollution in the region generally do not influence the Reserve during most local weather patterns. These include pollution from the Salt Lake City and Logan, Utah, urban areas, fertilizer factories in Pocatello, and some confined animal feeding operations. Studies conducted in City of Rocks National Reserve indicate that nitrogen deposition from confined animal feeding operations could be a potential problem in the future if these facilities were located closer to the Reserve, a potential moderate cumulative adverse effect. Currently, however, Reserve nitrogen deposition measurements are among the lowest in the region (Reserve 2012b).

Recent ozone monitoring has indicated that despite the Reserve's proximity to the Salt Lake City and Logan area (approximately 40 miles straight-line distance), regional wind patterns do not generally disperse these pollutants toward City of Rocks. Ozone concentrations in the Reserve are therefore better than predicted by modeling and consistent with ozone concentrations in other western rural parks (Bastis pers. comm. 2012; Ray 2011). Because the concentrations are within 80% of the EPA standard of 0.075 ppm, however, they are high enough to affect people who are sensitive to ozone. Nonetheless, even if the Environmental Protection Agency lowered the standard to 0.070 ppm or even 0.065 ppm, Reserve air quality would probably still meet the ozone NAAQS for ozone (Ray 2011). Concentrations are also high enough to potentially affect sensitive plant species, such as Saskatoon serviceberry (*Amelanchier alnifolia*), quaking aspen (*Populus tremuloides*), and Scouler's willow (*Salix scouleriana*) (UCBN 2001).

As noted in the preliminary natural resources condition assessment, in 2006 several counties in northern Utah with the potential to impact air quality in City of Rocks were designated as nonattainment for fine particulates because they

did not meet the PM_{2.5} NAAQS (Erixson and Corrao 2011). Salt Lake and Tooele counties were in nonattainment for both primary and secondary standards for sulfur dioxide, and part of Utah County was in nonattainment for carbon monoxide (Reserve 2007). The Idaho National Engineering and Environmental Laboratory between Craters of the Moon National Monument and Preserve and Idaho Falls emits sulfur dioxide and nitrogen oxides, large mineral and chemical plants with significant emissions exist near Pocatello, and sugar beet processing plants with notable emissions are located in adjacent Twin Falls and Minidoka counties. In addition, coal-fired power plants, large gold mines in northeast Nevada, industrial facilities, and agricultural and wildfires also have the potential to impact air quality within City of Rocks (Reserve 2007).

When past, present, and future actions are added to the proposed actions in alternative A, there would be additional short- and long-term adverse impacts on air quality from construction and operations, as well as beneficial effects from reductions in greenhouse gas emissions through Reserve implementation of its climate action plan. Actions that could impact air quality include the phase II expansion of Smoky Mountain Campground from alternative A (with up to 62 additional campsites), construction of a new visitor center, removal of the Circle Creek impoundment, and ongoing fire suppression.

Similarly, when past, present, and future actions are added to the proposed actions in alternatives B–D, there would be additional negligible to minor adverse effects on air quality from construction and negligible to minor adverse and beneficial contributions to cumulative effects from operations. Although there would be a range of actions in these alternatives, including the aforementioned Smoky Mountain Campground expansion and construction of other facilities, none of the alternatives would contribute new long-term sources of air pollution. Instead impacts would occur from construction and would be short-term. Where replacement construction occurred, long-term minor beneficial effects would result from

emphasizing sustainable materials and energy use, thereby reducing cumulative impacts on air quality. Cumulative adverse effects would also be slightly reduced in alternative B (compared to other alternatives), because no large new visitor facility is planned. Cumulative beneficial effects would be greater in alternatives A, C, and D, where new facilities built to minimum LEED silver-certified standards would be more likely to replace former facilities.

CONCLUSION

Alternative A would continue to have negligible to moderate short-term localized adverse and minor long-term beneficial impacts on air quality. Alternatives B, C, and D would have an increased range of minor to moderate short-term localized adverse impacts on air quality coupled with minor long-term beneficial effects. Because of the potential for shuttle use, alternative C could have slightly more beneficial effects than other alternatives; however as currently proposed, shuttle use would have a very small impact on overall operations.

PHYSICAL RESOURCES: LIGHTSCAPES

a. Lightscape Methodology

Context of impact: Lightscape impacts were considered within City of Rocks National Reserve, on IDPR-leased land and IDPR-owned land and within the region. There are no permanent light sources within the Reserve boundary.

Type of impact: Beneficial impacts would reduce light pollution, while adverse impacts would increase night lighting.

Impact Intensity

Negligible	Impacts would have no discernible effect on dark night skies. There would be no new long-term sources of light, and short-term sources of light would be directed inward and downward.
Minor	Impacts would be slightly detectable but there would be no new long-term sources of light. Both short-term and existing sources of light would be reduced through the application of mitigation measures.
Moderate	Impacts would be clearly detectable with new short- or long-term sources of light, partially mitigated through the application of mitigation measures or by reducing impacts from existing sources.
Major	Impacts would have substantial, highly noticeable effects, with new long-term sources of light that would permanently alter the perception of dark night skies.

b. Lightscape Impacts

Lightscares are natural resources and values that exist in the absence of human-caused light. According to the National Park Service, the term “natural lightscape” is used to describe resources and values that exist in the absence of human-caused light at night. Natural lightscares are critical for nighttime scenery, such as viewing a starry sky, but they are also crucial for maintaining nocturnal wildlife habitat. Many wildlife species rely on natural patterns of light and dark for navigation, to cue behaviors, or hide from predators. Lightscares can also be culturally defined, and may be integral to the historical fabric of a place. Human-caused light may be obtrusive similar to the way that noise can disrupt a contemplative or peaceful scene. Light that is undesirable in a natural or cultural landscape is often called “light pollution” (NPS 2012f).

ALTERNATIVE A IMPACTS

Reducing reflective light within the Reserve using best management practices for outdoor lighting (minimal lighting directed inward and downward) would have long-term minor beneficial effects on the ability to see the

night sky within and adjacent to the Reserve. Minimal outdoor lighting would continue to be provided at the Castle Rocks Administrative Unit for administrative and housing structures, a localized negligible to minor adverse effect. In alternative A there would continue to be no permanent lighting within the Reserve, a minor long-term beneficial effect.

Although there would be negligible adverse effects from lighting at the new visitor center and within the new campground development, this new lighting would be within the IDPR/BLM lease, instead of the Reserve, and would meet best management practices. Alternative A would continue to contribute to the ability to see features visible on clear nights, a long-term minor to moderate beneficial effect.

IMPACTS COMMON TO ALTERNATIVES B–D

Impacts would be similar to alternative A regarding current Reserve and campground lighting, plus there would be additional negligible to minor indirect beneficial effects from developing a plan to maintain or improve and interpret night sky resources, including working with the Idaho Department of Parks and Recreation to minimize lighting in IDPR-managed areas outside the Reserve, such as within Smoky Mountain Campground. Additional negligible to minor adverse impacts could occur from occasional lighting of the proposed outdoor amphitheater in the campground and from construction of another campground loop or area.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

In addition to impacts identified above, the outdoor learning center and visitor center proposed in alternative C would follow green building standards and would have minimal outdoor lighting in addition to existing campground lighting, a negligible to minor adverse effect. However, further research and understanding related to night sky resources could potentially result from studies conducted with partners. If these resulted in additional

mitigation actions, an indirect negligible to minor long-term beneficial effect could occur. If the proposed boundary expansion happened, the campground and visitor center and attendant outdoor lighting could be located within the Reserve.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

Impacts would be similar to alternatives A and C. Unlike alternative C, the outdoor amphitheater function would be associated with a new visitor center facility. Because it would not be a separate facility, it is likely that there would be fewer impacts associated with lighting it.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on lightscapes (as appropriate to the alternative) would include the following:

- Outdoor lighting at new and current facilities would be evaluated to improve existing conditions.
- Outdoor lighting would adhere to the following basic mitigation measures, to be analyzed step-wise:
 1. Need: Light would be placed only where it is needed. In many instances, modifications in landscape design (using ramps instead of stairs), visitor behavior (encouraging the use of handheld flashlights instead of reliance on permanent lighting), or simply an appraisal of whether a light is necessary can reduce the need for outdoor lighting.
 2. Control: Controls can be as simple as a user-activated light switch, a timer that allows one to exit the building and transition to a parking lot before the lights power down, or use of a sophisticated motion detection system. In many cases, the duty cycle of outdoor lights can be substantially reduced, yielding many environmental and operational savings.

3. Shield: Direct light downward. By directing all light downward, uplight is substantially reduced, leading to improvements in night sky quality and reductions in glare.
4. Regulate Spectrum: Select lamps that minimize negative impacts. Yellowish lights are preferred for scenic and wildlife reasons. White light should be limited to locations where there is a demonstrated need for proper color rendition (such as at a fuel pump or a search and rescue cache), building egress points, or where there is a particular cultural/historical compliance that would benefit from white lighting. Red lights or filters are compatible with seeing the night sky.
5. Regulate Intensity: Use the minimum amount of light necessary. Dark ambient environments require much less light than a typical urban or suburban setting. Industry standard practices are unsuitable for most park environments because they are too bright and intense.
6. Efficient: Select the most energy efficient lamp and fixture. This is the last step in the full mitigation of outdoor lighting. More energy and money can be saved using the above mitigation steps compared to selecting a marginally more efficient lamp technology.

CUMULATIVE IMPACTS

Because of development in the urban and suburban areas surrounding City of Rocks, the natural lightscape surrounding the Reserve has become increasingly lighted over the years. For instance, there is night-time lighting of the Pomerelle Mountain Resort ski area, which casts a glow in the direction of the Reserve, a seasonal cumulative adverse effect. Increased lighting in the surrounding area has affected areas of the Reserve at high elevations more than lower regions of the Reserve, which are shielded from light by natural terrain features such as mountains and/or rock formations. Because the City of Rocks National Reserve is still located in a very rural area and because there is no night lighting currently within the Reserve

itself (except associated with private lands), it is naturally very dark. Lighting associated with existing facilities, however, is currently located on nearby IDPR-leased BLM land (i.e., Smoky Mountain Campground) and IDPR land (Castle Rocks State Park Administrative Unit).

Development, including lighting, in nearby communities contributes to adverse effects on visitor experience at some high points within the Reserve. Light plumes from the rural towns of Almo, Oakley, and Albion; from the Pomerelle ski area in winter; from suburban development in Burley and Rupert; and from urban development in Twin Falls and Salt Lake City are visible at the edges of the night sky and would continue to contribute minor to moderate cumulative adverse effects.

Based on a recent inventory, the Reserve has a lightscape that is equivalent to some of the darkest NPS Upper Columbia Basin Network national park units. Because City of Rocks is located in a rural area somewhat distant from the closest major urban area (Salt Lake City), the natural quality of the night sky is high. A recent rapid assessment of night sky quality found that it is likely that the Reserve ranks at Bortle Class 3 on the Bortle Scale. This is a qualitative scale that relies on visual appearance to determine which of the 1 (pristine) to 9 (urban) classes a night sky falls within (Bortle 2001). Under the relatively good air quality conditions found in the Reserve, light from cities as far as 200 miles away is probably visible along the horizon.

When actions in alternatives A–D are added to the effects of other past, present, and future actions, they would not increase artificial light sources in the environment beyond current or historic levels, and they would preserve the ability to see natural features visible on clear nights, contributing cumulative beneficial effects. Similarly, mitigation measures and new initiatives regarding impacts in alternatives A–D would generally reduce the effect of reflective light within and just outside of the Reserve, depending on the proposed boundary expansion (if any) associated with the alternative.

CONCLUSION

Alternatives A–D would have long-term negligible to minor adverse impacts and long-term negligible to minor beneficial impacts. Overall trends would favor beneficial effects, despite new facilities.

PHYSICAL RESOURCES: SOUNDSCAPES

a. Soundscape Methodology

Context of impact: Soundscape impacts were considered within City of Rocks National Reserve, on IDPR-leased land and IDPR-owned land.

Type of impact: Beneficial impacts would reduce noise, while adverse impacts would increase it.

Impact Intensity

Negligible	Noise is either not detectable or detectable for brief periods of time. Most detectable noises do not induce physiological or behavioral responses in humans or wildlife.
Minor	Noise is detectable for a small fraction of the time. Noise induces physiological or behavioral responses in humans or wildlife, but these responses are brief and within the range of natural variation in these parameters.
Moderate	Noise is detectable for a substantial fraction of the time at low levels, or is present at high levels for short durations. Noise induces physiological or behavioral responses in humans or wildlife that may be of extended duration but can be accommodated without measurable risk of diminished biological function.
Major	Noise appreciably masks other sounds for a substantial fraction of the time or regularly exceeds high levels. Noise induces physiological or behavioral responses in humans or wildlife that are of extended duration and may present measurable risk of diminished biological function.

b. Soundscape Impacts

ALTERNATIVE A IMPACTS

There would continue to be a variety of human-caused sounds heard within the Reserve, including those associated with administrative and visitor use activities, such as motorized vehicles and equipment, aircraft, and generators. These human-caused sounds could continue to interfere in some places and at some times with visitors' ability to hear natural sounds, such as wind, water, and wildlife. Noise may also interfere with the ability of wildlife to hear predators or prey and may affect communication between members of the same species. This interference would be more likely to occur near roadways and in or near visitor use facilities such as campgrounds, picnic areas, and on frontcountry trails. If visitor use increased, noise could also increase in these areas. Nonetheless, there would also be long periods of quiet at night and during the day and night in late fall and winter, when there is much less human use.

Outside the Reserve, negligible to minor adverse effects on soundscape resources at the Castle Rocks State Park Administrative Unit would continue to be caused by activities associated with employee housing and other routine activities associated with administration and maintenance.

Intermittent noise from commercial or military aircraft and off-road vehicles would continue to occur throughout the Reserve and could affect visitor experience if unusually loud, consistent, and/or frequent. Although aircraft noise has been monitored in the Reserve and found to be audible between approximately 2% and 20% of the time, impacts could increase if flight paths changed, aircraft became more frequent, or aircraft flew lower or remained in the area longer (such as helicopters). Because all-terrain vehicles would continue to be allowed on county roads through the Reserve to access BLM and USFS lands, there would probably continue to be loud but intermittent vehicle noise associated with this use. In addition, because roads within City of Rocks are primarily unpaved, there would continue to be noise associated with

travel. These impacts would continue to have negligible to moderate, often intermittent, long-term effects, especially during peak use seasons.

Based on the Reserve's comprehensive management plan (Reserve 1996a), alternative A would continue to restrict the use of motor vehicles, motorized equipment, and other noisy devices (except firearms) to areas outside the development zone. Use of firearms would also continue to be restricted based on conformance to hunting seasons. Combined, these would continue to reduce overall noise in the Reserve, a long-term negligible to minor beneficial effect.

There would continue to be negligible to minor adverse effects from noise and activity (visitors and vehicles) associated with ongoing visitor uses, such as climbing, hiking, bicycling, horseback riding, and participation in educational and interpretive programs. There would be long-term negligible to moderate localized adverse effects from use of the campground from spring through fall, potentially causing some wildlife to avoid campgrounds and dispersed camping areas. Where youth activities are offered (YCC programs, internships, Junior Ranger programs, and other special events and programs, such as day camps), there could be short-term localized minor adverse effects, depending on the size of groups, the location, and whether buses were used to transport the participants.

When permits are granted for new climbing route establishment, establishment may include the use of portable rock drills. Day-to-day climbing activities may also include noise related to climber communication and achievement, or summits. For example, standard climbing signals are periodically called back and forth between climbing partners to enhance safety (Reserve 1998a). These activities would continue to have negligible to moderate intermittent localized adverse effects.

Construction activities associated with alternative A would include excavation, clearing and grading, earth hauling, gravel spreading, and operation of construction equipment and vehicles. Most construction activities would

not be expected to have an appreciable effect on existing noise levels, however, because most actions would not result in an increase in traffic volumes or new or permanent uses and would not cause major changes in existing operations. Construction noise impacts would largely be short-term, localized, and minor. Although there is a potential for temporary impacts on visitors or wildlife, mitigation measures (such as timing or equipment modifications) would be used to minimize these impacts.

Similarly, visitor center construction and long-term use impacts would probably be short-term and minor to moderate. These effects would be coupled with minor long-term adverse effects from increasing noise and activity in the vicinity of the visitor center and long-term beneficial effects from orienting visitors to soundscape resources and potentially engendering support for preserving the Reserve soundscape, an indirect beneficial effect if it modified visitor behavior in the Reserve.

Where new facilities were constructed, these could result in an increase in visitation, which could increase the number of vehicles (and hence visitors) coming to the Reserve, a long-term minor adverse effect, depending on how these visitors dispersed through the Reserve.

In addition to short-term construction impacts from creating another campground loop within Smoky Mountain Campground, there would be ongoing localized negligible to minor adverse effects from the equestrian staging area and ongoing camping outside the Reserve at Smoky Mountain Campground and inside the Reserve at the Juniper group site.

More systematic inventory of the Reserve's acoustic resources could lead to identification of those that are important to protect; could engender improved understanding of these resources; and could allow the Reserve to implement measures to reduce the effects of human-caused noise on City of Rocks, including on wildlife. Combined, there would be indirect and direct minor long-term beneficial effects from potentially identifying and reducing sources of unwanted noise in the Reserve.

IMPACTS COMMON TO ALTERNATIVES B–D

Long-term negligible to minor adverse impacts associated with ongoing administrative and interpretive operations, recreational, and maintenance activities would be the same as in alternative A. Similarly, construction impacts would probably be short-term, minor to moderate and localized, while long-term impacts would be minor. There would also be construction associated with modifications to other existing or new facilities in alternatives B–D.

Among the additional impacts in alternatives B–D would be effects associated with new trails and reconfigured camping within the Reserve, impacts from constructing a new campground loop (the same as in alternative A), and new impacts from developing a turnaround at Logger Springs Road and an equestrian staging area possibly near the Bread Loaves intersection or in another area.

There would be negligible to minor adverse effects from the development of new trail connections to adjacent lands, depending on the number of visitors who took advantage of these new opportunities and the number of additional vehicles attracted to the areas. Other impacts could also occur if new trails were developed to link the Reserve with Castle Rocks State Park or the Independence Lake area on adjacent USFS land.

Reconfiguration of the Reserve campsites, based on the recommendations of the Rim development concept plan, would have a variety of negligible to minor short-term adverse impacts during modifications and long-term beneficial and negligible to moderate adverse impacts during use. Impacts would depend on campsite use and whether campsites were closed, changed, or expanded. For example, removing some dispersed sites along the road would improve soundscape resources at night in this area, while adding other sites could slightly increase impacts elsewhere. Approximately 9 campsites would be converted to day use, 13 would be closed, and 22 replacement sites would be constructed.

Developing a turnaround at the north end of Logger Springs Road (adjacent to USFS land within the Reserve boundary) would have negligible to moderate localized short-term adverse impacts from construction and long-term negligible adverse effects from continuing use in this area.

A new equestrian staging area, including parking and access, possibly near the Bread Loaves intersection would result in both short-term negligible to moderate localized adverse impacts related to construction and long-term minor impacts from additional noise and activity in the area.

There could also be a variety of indirect long-term beneficial effects associated with proposed plans, including a soundscape management plan and a trails management plan. Overall soundscape impacts would be similar to alternative A; however, preparation of a soundscape management plan could allow the Reserve to better protect soundscapes from human-caused sounds and to focus on reducing the impacts that produce the most short- and long-term noise in the Reserve. As a result, alternatives B–D would probably generate more short- and long-term beneficial impacts than alternative A.

Similarly, if a trails management plan proposed new trails, impacts would be similar to those associated with construction of the trail to the summit of Smoky Mountain. Impacts, however, could be reduced by closing or changing use on some trail segments, actions that could also occur through implementation of the trails plan.

Other impacts on the soundscape could result from potential improvements to the county road, either by Cassia County (or by the National Park Service under a maintenance agreement or future change in land management). For example there could be negligible to minor beneficial or adverse effects on soundscape resources if the speed limit decreases, if new parking areas are identified or improved, or if the surface of the road is changed.

ADDITIONAL IMPACTS FROM ALTERNATIVE B

In addition to impacts described above, alternative B includes remodeling of the Castle Rocks Administrative Unit visitor center and construction of an amphitheater at Smoky Mountain. Partnering with the Idaho Department of Parks and Recreation to remodel (reconfigure and/or expand) the existing visitor center at the Castle Rocks State Park Administrative Unit would have no additional long-term impacts on soundscapes in the Reserve. Impacts at this facility located outside the Reserve would be short-term and localized and negligible to moderate during construction.

Constructing an amphitheater at Smoky Mountain Campground (outside the Reserve) would have both negligible to moderate short-term localized adverse impacts from construction and long-term minor adverse impacts that could range to locally moderate, depending on the activity occurring at the amphitheater and its duration.

In addition to trails impacts identified for alternatives B–D, there could be additional negligible to minor adverse effects from connecting the Nicholson Ranch section of the California Trail with the Tea Kettle Trail. It could also have long-term beneficial effects from increasing dispersal of visitors. To the extent that visitors disperse rather than congregate on the most popular trails, impacts on the soundscape would probably also be dispersed and therefore reduced in some areas.

The new Smoky Mountain Campground primitive camping area could have additional negligible to moderate short-term adverse effects from the construction of a combination of group and individual sites to facilitate social camping opportunities for climbers and others.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

Unlike alternative B but similar to alternative A, both adverse and beneficial impacts would occur from construction of a new visitor center

and amphitheater. Construction of the trail to the summit of Smoky Mountain would have negligible to minor adverse impacts during construction and long-term negligible adverse effects during use. As in alternative B, beneficial effects could also occur from providing this visitor use opportunity if it dispersed visitor use. Also as in alternative B, there would be additional negligible to moderate short-term adverse effects from the construction of a combination of group and individual sites and to facilitate social camping opportunities for climbers. In alternative C, these campsites could also be used to support student or family groups at the outdoor learning center and or to facilitate research use. As in alternative A, facilities would include an accessible comfort station, but the potential for showers and additional parking would be more likely to occur in this alternative because of the outdoor learning center and researcher use.

Construction of a small (approximately 2,500 square-foot) visitor center near the entrance to Almo would have effects similar to those described in alternative A for the proposed comprehensive management plan visitor facility. Because the visitor center would be smaller than the one proposed in alternative A, most short-term adverse effects would also be reduced; however, long-term adverse and beneficial effects would be the same.

Potential construction of five to six yurts and an outdoor shelter or pavilion for an outdoor learning center would have short-term localized negligible to moderate adverse effects during construction and long-term localized minor to moderate adverse effects during use, depending on the number and kind of participants, their age, and other factors.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

Alternative D would include impacts associated with an outdoor amphitheater, similar to alternative B. Compared to other alternatives, additional minor adverse effects could potentially be associated with an increase in

onsite visitor activities. These activities would be associated with this alternative's emphasis on frontcountry opportunities, such as guided walks and talks; a youth climbing school; and possible living history and demonstration projects for the California Trail, ranching heritage, and archeology. It is also likely that additional impacts would be associated with the visitor center facility, which would be nearly twice the size of the facility proposed in alternative C (albeit smaller than in alternative A). Additional impacts would probably also arise from constructing more toilets and day-use parking areas to accommodate projected increased use, including from parking in addition to the turnaround at the Indian Grove overlook.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on soundscapes (as appropriate to the alternative) would include the following:

- Avoid construction during the breeding and nesting periods of threatened and endangered bird species, including Migratory Bird Treaty Act birds.
- Limit construction to daylight hours, avoiding early morning and late evening (such as the two hours after sunrise and the two hours before sunset), because these are typically the quietest times in the Reserve and often the most sensitive for wildlife.
- Locate construction equipment as far as possible from sensitive receptors such as wildlife, visitors, and residents.
- Avoid idling equipment when not in use.
- Use mufflers on all equipment.
- Use well-maintained and properly functioning equipment.
- Use hydraulically or electrically powered tools when feasible.
- Monitor to determine if soundscape conditions meet the identified user capacity standard.

- Increase education about the importance of natural soundscapes in the Reserve if conditions approach the user capacity standard.
- Patrol areas of concern and contact visitors who are creating unacceptable noise in campsites.

CUMULATIVE IMPACTS

There would continue to be a variety of human-caused sounds that could be detected in the Reserve, including from motor vehicle engines and travel on unpaved roads; from motorized equipment, such as mowers and tools during maintenance activities; from the discharge of firearms; from low- and high-altitude aircraft flights, including civilian and military aircraft; and from the use of devices such as radios, generators, and horns. If the Reserve were to work with the military, there is a potential that military overflight aircraft could be reduced, with subsequent minor to moderate intermittent beneficial effects. This goal, though noted in the comprehensive management plan (Reserve 1996a: p. 140), has not been achieved since the approval of that plan, so it is uncertain whether it would be feasible during the term of this GMP.

Baseline conditions for much of the Reserve's soundscape were defined through comprehensive acoustical monitoring in 2008 and 2009 (Reserve 2010a). This study determined current acoustical conditions at the Reserve. Results included measurements of existing ambient levels, calculations of sound source durations, and estimates of natural ambient levels. It was determined that human-caused sounds were audible between 1.9% and 20.2% of the time, depending on the site. Vehicles, voices, and domestic animals were frequently audible, but aircraft was the largest contributor of human-caused sound. More specifically, commercial jets were audible between 1.8% and 18.6% of the day. It is likely that this level of noise would continue but could increase or change based on changing flight paths and the type and speed of aircraft.

As the gateway communities outside the Reserve continue to grow, and as more visitors are attracted to the City of Rocks, it is likely that there will be slight, initially imperceptible increases in noise within and around the Reserve contributing minor cumulative adverse effects. If visitor use and/or air traffic continue to increase, impacts on soundscapes within the Reserve could also occur, and these could become more noticeable and could have increasing effects. In 1991 a county ordinance was adopted for City of Rocks that prohibits the operation of a motor vehicle, motorized toy, or audio device making unreasonable noise considering the particular time, place, and conditions in the Reserve (Reserve 1998a). This ordinance also prohibits the use of power drills without permission on public and private property in undeveloped areas of the Reserve.

When the actions in alternative A are combined with actions associated with past, present, and potential future projects within and outside the Reserve, it is likely that cumulative impacts would continue to remain minor. Most of the proposed actions within or outside the Reserve—such as potential geothermal development, construction projects, or implementation of proposed plans—would not contribute long-term sources of noise other than increased traffic on roadways or in the vicinity of a new facility. Alternative A contributions to long-term (cumulative) impacts would include noise associated with new use of another campground loop and use of an expanded visitor center facility in a different location. As a result, it is likely that cumulative impacts on soundscapes associated with alternative A would continue to be minor and localized to the vicinity of these new facilities.

Similarly, although new long-term sources in alternatives B–D would increase somewhat—with the addition of an amphitheater at Smoky Mountain in alternatives B and C, an outdoor learning center in alternative C, and additional development at the Indian Grove overlook and potentially in other areas to accommodate increased frontcountry use in alternative D—it is likely that these impacts would be localized

in the vicinity of these new facilities and would not contribute to overall cumulative impacts. Therefore, cumulative impacts under alternatives B–D would remain minor. Of these, impacts would probably be greatest under alternative D, followed by alternatives C and B. Although new facilities would be constructed and new opportunities for visitor use provided, most of the Reserve would remain undeveloped and cumulative impacts on both the natural and cultural landscape would be minor.

CONCLUSION

Under all alternatives, long-term impacts would continue to be localized and minor. New contributions to soundscape impacts would occur from new facilities but overall impacts would remain localized and negligible to minor because they would be relocated or expanded in areas of existing use. Short-term adverse impacts, primarily related to construction of new facilities, would range from negligible to moderate, with some potential for major short-term highly localized impacts related to use (such as from firearms during hunting season or from blasting during construction). Because monitoring and mitigation would be used to further reduce or limit impacts, cumulative impacts would also remain minor.

PHYSICAL RESOURCES: GEOLOGY AND SOILS

a. *Geology and Soils Methodology*

Geology and soils analyses were based on a qualitative assessment of geologic resources, generalized soil types, and typical effects of the type of impact described. Future quantitative analysis would be conducted in conjunction with additional environmental impact analysis to determine the amount of soil to be removed in major excavation areas or that would be used in fill areas, depending on the proposed project.

Context of impact: Geology and soils impacts were considered within City of Rocks National Reserve, on IDPR-leased land, and IDPR-owned land.

Type of impact: Activities that result in soil or geologic resource impacts include the construction of buildings or structures, parking areas, roads, trails, and other facilities. Adverse impacts on soil include soil removal, profile mixing, compaction, erosion, and contamination. Adverse impacts would degrade chemical or physical properties of soils or result in the loss or temporary removal, as well as the importation of soils. Beneficial impacts result from actions that protect soils from erosion or restore natural soil conditions. Restoration and revegetation have both adverse and beneficial effects.

- **Soil removal:** Surfacing and construction remove and/or cover the soil surface, resulting in changes to basic soil properties, including altering the ability of water to penetrate the soil, as well as nutrient availability and water-holding capacity. Excavation and removal of the soil surface would result in a long-term impact because basic soil properties (such as structure, texture, and physical and chemical composition), which may have taken tens, hundreds, or thousands of years to develop are removed. Covering the surface reduces water movement and minimizes the opportunity for normal physical and chemical soil processes to occur.
- **Soil profile mixing:** Soil excavation and redistribution or importation of fill causes removal or mixing of the soil profile and disrupts soil structural characteristics, interrupting the chemical, physical, and biological processes that naturally occur in soil horizons. The level of change is dependent on the level of the alteration. It may take centuries for the soil profile to redevelop.
- **Soil compaction:** Soil compaction may occur as a result of construction activities or in areas of intensive use such as trails, campgrounds, and picnic areas. Finer-grained soils, including wetland soils, are very susceptible to compaction effects. Soil compaction reduces infiltration rates and decreases pore space, thereby

increasing surface runoff and the potential for erosion. Deep compaction of soils may impede subsurface water movement. In turn, these effects can alter soil chemical processes such as nutrient transfer, biological processes such as root development and microbial patterns, and physical processes such as soil structure. Vegetation growth on compacted soils is often limited because of low infiltration, poor root penetration, and lack of nutrients.

- **Soil erosion:** Removal of vegetation and organic-rich soil horizons through grading or casual pedestrian use may result in accelerated erosion of the soil surface, particularly on slopes steeper than 50%. Where vegetation is replaced by hard surfacing, such as by buildings, surfacing, or walkways, soils are also compacted, and physical and biotic processes are disrupted. Sandy soils on steep slopes and along watercourses are especially susceptible to erosion, especially poorly consolidated alluvial soils.
- **Rare or sensitive soils:** Certain microclimates in City of Rocks have distinct vegetation and soils. Bare rock exposures host slow-developing, easily disturbed soil crusts. Moss and lichen are a common occurrence on low-profile, low-angled rock surfaces. Mosses usually look like black splotches, but right after a rain they turn a verdant green that lasts for about a day. Wetlands and other areas with fine-grained soils are prone to erosion and compaction impacts.
- **Soil contamination:** The addition of chemical constituents into the soils as a result of surfacing, untreated runoff from impermeable surfaces, and/or incidental spills may alter micro- or macro-organism populations, diversity, and dynamics. Machinery involved with construction activities may deposit small amounts of natural or synthetic petroleum-hydrocarbons onto soils through equipment failure or normal operations.
- **Soil restoration:** Ecological restoration

that would minimize erosion potential and increase organic matter in the soil is considered a beneficial effect. Short-term adverse effects may occur during site-restoration activities where construction equipment may compact soils, temporarily eliminate vegetation cover, and cause potential erosion from surface water runoff over the exposed soils; however, over the long term, restoration would restore the soil-forming processes by reducing erosion.

Geology Impact Intensity

Negligible	Actions could change aspects of a geologic feature or process but the change would not be detectable.
Minor	Actions would change a geologic feature or process, with the change measurable but localized.
Moderate	Actions would change a geologic feature or process, with the change measurable and localized or widespread.
Major	Actions would change a key geologic feature or process, with the change measurable and widespread.

Soils Impact Intensity

Negligible	Effects on soils would be generally undetectable. Any effects on soil productivity or fertility would be slight.
Minor	Effects on soils would be detectable and could include loss of organic surface horizons. Effects on soil productivity or fertility and the area affected would be small.
Moderate	The effect on soils would be readily apparent and probably long-term and could include loss of subsurface soil horizons. Impacts would result in a change to the character of the resources over a relatively wide area or in changes to a rare or sensitive soil.
Major	The effect on soils would be readily apparent, affecting size, continuity, productivity, and/or fertility. Soil erosion would be affected over a large area (or over small areas if a sensitive soil is affected).

b. Geology and Soils Impacts

ALTERNATIVE A IMPACTS

Recreational use: There would continue to be a wide range of negligible to moderate localized adverse impacts on soils from ongoing recreational activities, including picnicking, camping, climbing, hiking, bicycling, and horseback riding. Among these, climbing, bicycling, and horseback riding would probably continue to have the most impacts, ranging from negligible to moderate and localized in some areas. For instance, equestrian and bicycle use often result in increased erosion on trails, depending on weather conditions and trail surfaces, while sport climbing is dependent on a staging area, often resulting in large bare areas below popular routes because of repeated staging use. These types of impacts would generally be localized and moderate. Most impacts, however, would be negligible to minor. For example, along many trails, impacts would probably continue to expand into adjacent areas, from trampling the edges of the trail in damp or wet conditions or from social trailing that often occurs as visitors repeatedly explore the same areas. There would also continue to be moderate long-term impacts from erosion related to the poor alignment of many trails built prior to Reserve establishment (Reserve 2010b; p.27). Some of these Reserve trails were constructed on steep slopes without regard to drainage requirements and are surfaced with erodible granitic soils.

Continued use of the rim campsites and Smoky Mountain Campground (including the equestrian camping and staging facilities), and the Juniper group campsite would also continue to affect soils. Impacts associated with camping would probably be reduced where tent pads were used, depending on whether the tent pad could accommodate user tents, while impacts associated with equestrian use would include soil compaction and erosion associated with runoff through bare areas, especially where animals were contained.

Ongoing rock climbing and scrambling would continue to adversely affect soils and geology. Impacts would range from bare areas beneath popular climbs (caused by staging and dog depressions), to inadvertent damage to rocks to permanently drilling or inserting hardware (such as for bolts and rappelling anchors) on rock faces. Creation of new routes would continue to cause some erosion of soil from modification of rocks and loss of vegetation, such as shrubs, mosses, and lichens. Climbers would also continue to inadvertently or unlawfully affect rock surfaces by clearing vegetation and breaking, chipping, or chiseling off loose material or flakes using brushes or other devices or from slings dislodging rocks. Although most vegetation loss is caused by foot travel or livestock, in some instances plants or trees have been unlawfully broken, chopped, or sawed at the base of climbs to provide climbers easier access to routes (Reserve 1998a). Short-term effects would include the use of chalk, which may affect the pH of the rock surface and therefore have uncertain effects on weathering. Because new bolted routes are required to be permitted in advance, and a small number of these are approved annually, over time a few areas would be affected and would continue to result in minor to moderate localized adverse effects. Rehabilitating staging areas and confining impacts associated with these—for example, by installing fences or filling erosion impacts—would continue to cause both minor to moderate long-term adverse and beneficial effects.

Continued closure of inscription rocks to scrambling and climbing would continue to have long-term beneficial effects by improving protection for these resources. Similarly the continued ban on climbing Twin Sisters would provide long-term beneficial effects by avoiding impacts associated with technical climbing and protecting this rock formation.

Natural and cultural resources management: Long-term beneficial effects on soils and geology would result from retaining the Research Natural Area. There would also be long-term beneficial effects on geology from the ability to protect geological resources by updating

the inventory of pinnacles and sensitive rock features in the Reserve. Negligible to minor adverse effects would continue to occur as the Reserve undertook additional archeological surveys and occasional rehabilitation of historic structures. Although removal of the Circle Creek impoundment would initially have short-term minor to moderate adverse effects on soils and geology, long-term localized moderate beneficial effects on soils would result from restoring natural conditions, including enabling the return of native plants and soil moisture levels.

Ongoing programs to treat nonnative invasive plants using manual/mechanical control, herbicides, and other methods would have both short-term adverse and long-term beneficial impacts from minimizing the effects of nonnative species on soil qualities, such as soil chemistry. Use of the invasive plant management plan to refine priority areas for nonnative invasive plant treatment would have both minor localized beneficial and adverse effects. Among these effects are beneficial impacts associated with treatment of nonnative invasive plants that could otherwise affect soil properties, for example by precluding the reestablishment of native species or by improving conditions for mycorrhizae or other soil microorganisms. Adverse effects would include disturbance of soils from manual/mechanical and/or herbicide treatments. Development of a vegetation management plan could improve the Reserve's knowledge and understanding of plant community requirements, including soils, and could lead to improved management of soil resources, an indirect long-term minor beneficial effect.

Fire suppression: There would continue to be long-term negligible to moderate adverse and minor to moderate beneficial effects from maintaining the wildfire suppression program. Adverse effects would result from not restoring the natural occurrence of fire and its role in maintaining Reserve ecological communities, while beneficial effects could occur from minimizing the frequency of fire by not encouraging the spread of cheatgrass.

Grazing and livestock trailing: Continued livestock grazing and trailing within existing allotments in the Reserve would continue to cause changes to soils and geology, including soil compaction from trampling, especially during wet periods; soil loss from faster runoff in compacted areas; soil erosion, where vegetation has been removed or trampled; changes in fertility related to deposition of waste; and other localized negligible to moderate adverse impacts, depending on the location of the disturbance and the type of soils or geology. For example, wetland or riparian soils often recover more slowly from compaction compared to alluvial or loose soils, depending on climatic conditions. Continued systematic elimination of grazing from wetland and riparian areas would have long-term beneficial effects on these sensitive ecological communities, coupled with short-term minor adverse effects as fences were installed. Soils in areas where livestock congregate, such as along fence lines and gates, at existing and new trough sites in allotments, would continue to be affected more by compaction and erosion. Soils would also be adversely affected by the construction of new watering troughs and pipelines, including from displacement and loss of natural moisture conditions.

Construction: A variety of localized negligible to moderate short- and long-term adverse impacts would occur from construction of new facilities in areas owned or managed by the Reserve, including the expansion of Smoky Mountain Campground (new campsites and restrooms), and the eventual replacement of the existing 1,035-square-foot visitor center with an approximately 9,500-square-foot visitor center on IDPR-leased land near Smoky Mountain. The new visitor center would be located in an area comprising approximately five acres including parking. Minor to locally moderate or major impacts could include clearing of vegetation and grading of soils, excavation of soil and rock for foundations, replacement of native materials with fill, and covering soils with impermeable surfaces (such as sidewalks, parking areas, and buildings). After construction, native plant landscaping would

include planting salvaged and/or container-grown native plants and seeds, which would have a negligible to minor long-term beneficial effect on those soils in the area not affected by buildings, walkways, or infrastructure.

IMPACTS COMMON TO ALTERNATIVES ALTERNATIVE B-D

Recreational use: Impacts associated with ongoing recreational use would be the same as in alternative A, except that reconfiguring day and overnight use based on the recommendations of the Rim development concept plan would result in minor localized adverse impacts on soils and geologic resources from the vegetation removal associated with constructing approximately 22 new campsites. Minor localized adverse impacts would also result from eliminating erosion problems in existing campsites; restoration of excess bare areas and social trails; restoring approximately 13 campsites recommended for closure and converting 9 others to picnicking sites; and installing new infrastructure, such as signs. Several of these activities, such as restoration and minimizing and/or eliminating erosion problems, would also have short- and long-term minor to moderate localized beneficial effects on soils and geology.

Developing a trails management plan could affect area soils by identifying potential new trail linkages within and extending out of the Reserve toward Castle Rocks State Park and/or the Independence Lake area (in cooperation with the U.S. Forest Service and/or Bureau of Land Management). Localized adverse impacts could range from negligible to moderate, depending on where the trails were routed (such as through seasonally wet areas). Beneficial impacts could occur from reducing erosion on existing routes or trails. Trail design and construction would avoid adverse impacts on key resources such as wetlands and historic properties to the extent possible and would be subject to additional environmental impact analysis.

Constructing an equestrian staging area possibly near the Bread Loaves intersection or in another area would have negligible effects on geology and minor to moderate adverse impacts on

soils, coupled with long-term beneficial effects from providing for this activity in a designated location with durable surfacing, rather than along roadsides where vehicles and horses have affected adjacent undisturbed areas. Providing additional staging area for horses may also increase equestrian use of trails and impacts related to horses on trails in the Reserve, a minor to moderate localized adverse impact on soil conditions on trails.

Potential Reserve management or assistance with county management of county roads would probably result in long-term beneficial effects. This opportunity could improve conformance of road maintenance to NPS road standards and desired character. Long-term beneficial effects such as improved engineering, erosion control, and dust abatement could also occur. For example, directing water in sheet flow off the road could reduce soil erosion by dispersing rather than concentrating water. Similarly, improving trail tread (path surface) to encourage sheet flow rather than concentrated flow would have long-term minor localized beneficial effects.

Natural and cultural resources management: Minor adverse and minor to moderate long-term beneficial impacts from actions associated with natural and cultural resources management would be the same as described in alternative A. In addition, there would be indirect minor to moderate long-term beneficial effects from improving resource knowledge and disseminating additional information.

Developing a plan to manage the California Trail ruts could have indirect long-term negligible to minor localized beneficial or adverse effects on soils and geology depending on what actions were identified by the plan.

Fire management: Development of a fuels treatment plan could help to prevent high fire intensities in grazing allotments and could lead to better protection of natural and cultural resources and infrastructure in the Reserve, a long-term beneficial effect. Hazard fuel reduction would also have minor adverse effects on soils in the Reserve, as vegetation treatments were undertaken.

Use of fire could benefit fire-dependent plant communities and renew soils by cycling nutrients. Fires would have both adverse and beneficial effects on soils that would depend on a variety of factors, including the intensity, timing, duration, and location of the fire, as well as reestablishment of the vegetation community. In addition, developing a contingency plan for areas where high fire intensity and/or post-fire erosion are anticipated could help protect the Reserve's highly erodible granitic soils, a long-term beneficial effect.

Fire use could result in deposits of carbon, blackening rock and soil surfaces, and exfoliation or bleaching of rock surfaces under high fire intensity. Because these impacts would occur primarily in heavily vegetated rather than sparsely vegetated areas, effects would probably be short-term, localized, and minor to moderate. Other potential effects related to fire would include mechanical disturbance associated with the use of heavy equipment for firefighting or mop-up. In accordance with fire management planning, such use would not be approved in areas with sensitive resources and as a result would be anticipated to have negligible to moderate localized adverse effects. Loss of vegetation from fire could also cause short-term negligible to moderate localized decreases in infiltration rates and increases in water runoff from soils, affecting erosion and sedimentation rates. Prescribed fires would also have a variety of long-term beneficial effects on soils, resulting in an increase in nutrient availability for plants and probably an overall increase in soil productivity.

Prescribed and wildland fires may also cause changes in organic horizons, water repellency, infiltration capacity, porosity, structure, temperature, and hydrologic properties, and may increase or decrease erosion. Depending on the slope, fire may increase the potential for accelerating erosion through its effects on vegetation, organic matter, and the physical properties of the soil (including reducing water infiltration). In the absence of vegetative cover, dry raveling (particles sliding down a slope) can also increase on steep slopes after fire.

Burning wood releases hydrocarbons, which diffuse both up through smoke and down through the soil, and may cause water-repellent soils. These hydrocarbons moving through soil sometimes coat soil particles with wax, causing them to repel water. Soil that is water repellent causes short-term adverse effects on plant growth by reducing the availability of water. Changes in soil nutrient composition are usually the result of the volatilization of elements during combustion of fuel and organic matter. Nutrients in the soil may also be lost as ash via air currents, convection, or as a result of leaching.

Fires also change the cycling of nutrients and the physical and biotic characteristics of soils. The magnitude and longevity of these effects depend on many factors including fire regime, fire severity, vegetation type, soil type, topography, season, and pre- and post-fire weather conditions. Fire effects may also cause indirect impacts, including changes in soil microorganisms and erosion rates. There would be short- to long-term beneficial effects on soil nutrient reserves by the release of nutrients as ash deposited during fires, resulting in increased natural fertilization of the soil and attendant increases in soil capacity to grow vegetation. The added organic material would work in combination with dead and dying root systems of non-fire-tolerant plants to make the soil more porous, better able to retain water, and less compact, while increasing needed surface area for essential microorganisms, mycorrhizae, and roots (Vogl 1979; Wright and Bailey 1980).

Grazing and livestock trailing: As described in alternative A, there would continue to be negligible to moderate localized adverse impacts on soils and geology from grazing and livestock trailing, and continuing to eliminate grazing in wetland and riparian areas would have long-term minor to moderate localized beneficial effects.

Boundary modifications: Boundary adjustments in the Research Natural Area would have long-term beneficial impacts on soils from the additional area that would be encompassed. There would also be long-term beneficial effects on geologic resources from the expansion of

the RNA boundary. Resources that would be protected include Mahogany Mountain, Emery Canyon, and other geologic pinnacles. Interpretive programs emphasizing the unique Reserve geology could also engender additional support for protection of these resources, an indirect negligible to minor long-term beneficial effect.

Construction: As in alternative A, there would be a variety of localized negligible to moderate adverse impacts on geology and soils from the construction of new facilities in the Reserve, including new trails, the expansion of facilities on current IDPR-leased land (including for campground expansion, restrooms, and an amphitheater), implementation of the Rim DCP recommendations, and construction of a turnaround at the north end of Logger Springs Road.

ADDITIONAL IMPACTS FROM ALTERNATIVE B

Impacts associated with alternative B would be the same as described above, except that retaining the current visitor center and reconfiguring its interior would avoid most new impacts on soils.

Recreational use: In addition to impacts associated with ongoing recreational use described above, there would be slightly more adverse impacts associated with constructing a new multiuse trail from excavation and removal of vegetation.

Grazing management: Reduced grazing pressure could lead to long-term beneficial effects from decreased compaction of soils and natural changes in plant communities. Within the Reserve, grazing pressure would be expected to decline in some areas if permittees discontinue requests for permits, probably resulting in a reduction in the total number of cows and animal unit months over time. Potentially discontinuing or consolidating some allotments, if initiated by the permittees, could also lead to enhanced beneficial effects on soils.

In addition, reducing or eliminating grazing in the California Trail Zone and potentially the Visitor Facilities and Access Zone would have minor long-term beneficial effects on soils and geology in that area, but would probably be displaced to other allotments within the Reserve. Tracy Lane, in the southwest corner of the Reserve, is the only public land in the California Trail Zone that is currently grazed. New minor adverse impacts would be contributed from more waysides and exhibits and/or unstaffed information kiosks.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

Recreational use: As in alternative B, in addition to impacts associated with ongoing recreational use, there would be slightly more adverse impacts associated with a new multiuse trail and with a trail to the summit of Smoky Mountain.

Natural and cultural resources management: There would also be indirect minor to moderate long-term beneficial effects from improving resource knowledge and disseminating additional information, as well as from conducting additional inventory and monitoring projects and programs, especially those associated with vegetation and soils.

Fire management: Impacts would be the same as described above.

Grazing management: As in alternative B, reduced grazing pressure could lead to long-term beneficial effects from decreased compaction of soils and natural changes in plant communities. Within the Reserve, grazing pressure would be expected to decline depending on whether permittees voluntarily accepted grazing buyouts, probably resulting in a reduction/elimination in the total number of cows and animal unit months over time.

Boundary modifications: Both RNA and Reserve boundary modifications would have long-term beneficial effects on soils and geology from additional protection of unique areas and from protection of most resources in a natural condition. In addition, the cooperative

management area could result in additional protection from development such as mining on soils and geology, particularly for resources associated with the western boundary of the national natural landmark.

Construction: As described above, there would be a wide range of localized negligible to moderate adverse impacts on geology and soils from the construction of new facilities in the Reserve: in alternative C these would include new trails, the expansion of Smoky Mountain Campground to include additional campsites and an amphitheater, implementation of the Rim DCP recommendations, construction of a turnaround at the north end of Logger Springs Road, and development of the outdoor learning center. Constructing a smaller shared visitor center than proposed in alternative A would have fewer adverse impacts on geology and soils, though the kinds of impacts would be similar.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

Impacts associated with recreational use, natural and cultural resources management, fire management, grazing management, boundary modifications, and construction would be the same as described above in “Impacts Common to Alternatives B–D,” except that there would be a different array of impacts associated with:

- Recreational use (with more recreational vehicle sites rather than tent campsites, similar to alternative A).
- Grazing management (with slightly more impacts anticipated, similar to alternative A: grazing effects would continue in all zones as permits continued to be renewed, though there could be fewer impacts in the Visitor Facilities and Access Zone if grazing allotments were modified to exclude this area).
- Construction (including a much larger visitor center facility, similar to alternative A, and a new overlook instead of a turnaround at Indian Grove).

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on geologic resources and soils (as appropriate to the alternative) would include the following:

- Refrain from taking gravel, sand, and materials from within the Reserve for road maintenance or construction—these materials would come from a nearby source and would be mineralogically and petrologically compatible with native rock in the Reserve.
- Locate construction staging areas where they would minimize new disturbance of area soils and vegetation.
- Minimize ground disturbance to the extent practicable during construction of new or modification of existing facilities.
- Minimize driving over or compacting root zones.
- Use mats or plywood to minimize soil compaction impacts when working in wet areas.
- Salvage topsoil from excavated areas for use in recovering source area or other project areas.
- Windrow topsoil at a height that would help to preserve soil microorganisms (below three feet).
- Reuse excavated materials where possible in the project area.
- Revegetate project areas through native seeding and planting.
- Import weed-free clean fill and store imported or excavated topsoil and fill in a weed-free area, covered by weed cloth to prevent contamination.
- Identify clearing limits to minimize the amount of vegetation loss.
- Clear and grub only those areas where construction would occur.
- Prepare and approve a hazardous spill plan or spill prevention containment and control plan, whichever is appropriate, before construction begins.

- Encourage the use of nonpetroleum-based hydraulic fluid in heavy equipment for construction projects.
- Identify climbing route access paths that would avoid the development of social trails.
- Develop and contain staging areas for climbers to limit spillover impacts into adjacent undisturbed areas.
- Continue to encourage minimum impact climbing techniques.
- Continue to require permits for new bolted route establishment.
- Make adjustments, such as changing animal numbers, seasons of use, kinds or classes of animals, or management practices as warranted by specific conditions on grazing allotments and by monitoring.
- Exclude cattle from wetland and riparian areas through a variety of means, such as by providing alternate water sources or adding fencing, as appropriate.

CUMULATIVE IMPACTS

Over time, development and use of lands within and near the Reserve on IDPR land and IDPR-leased land for administration, recreation, grazing, and other uses have resulted in modifications to soils and geology, contributing cumulative adverse effects. Compared to the overall area contained within the Reserve boundary, however, only a small percentage has actually been developed. There are approximately 17.98 miles of roads (of these 9.9 miles are managed by Cassia County and 8.08 miles are managed by the Reserve), more than 23 miles of designated trails and an unknown number of social trails, 38 recreational vehicle / equestrian-developed campsites, and 51 primitive campsites.

There are an estimated 157 bolted climbing routes and 191 traditional routes in the Reserve. Both have contributed to soil erosion and alteration of rock surfaces, contributing minor cumulative adverse effects. However, county ordinances enacted in 1991, together with the Reserve permit requirement for new bolted

routes, have been very effective at reducing the proliferation of bolted routes within the Reserve (Reserve 1998a: p. 31). Manual rock drills used in sport climbing have also affected geology. The 1998 climbing management plan identified 13 register rocks bearing emigrant inscriptions. Of these, 10 possessed climbing routes at the time, some of which had damaged inscriptions due to bolts or other climbing hardware (Reserve 1998a: p. 32). Later, climbing was eliminated from and is no longer allowed on inscription rocks and the bolts have been removed from signature rocks on public land in the California Trail Zone, a cumulative beneficial effect.)

There are also a variety of wayside exhibits, information signs, and trail signs in the Reserve that have affected soils. Existing buildings and structures also contribute minimal cumulative effects, because most of these are small buildings such as vault toilets and information kiosks. Widespread impacts include conversion of native vegetation to a mix of native and nonnative vegetation, due to grazing and/or past disturbance, as well as the introduction and spread of invasive species. Similarly, grazing has affected springs and riparian areas because of water diversion for livestock, resulting in increased erosion and loss of natural soil moisture. To the extent that this activity continues, it would continue to contribute adverse cumulative effects.

Past actions include the provision in the Reserve's 1996 comprehensive management plan to remove grazing from wetland and riparian areas, an effort that has continued to the present day and that has resulted in long-term moderate to major cumulative beneficial effects following original impacts on these areas. Improvements would continue as more of these areas are fenced out and grazing is confined to more durable areas, where soils are not as susceptible to compaction and erosion. In addition, construction of roads, trails, and climbing routes has had localized to widespread adverse effects on soils and geology, primarily associated with erosion as well as cut and fill along roadways. Indirect long-term beneficial effects have probably been conferred by actions

such as the development of the self-guided geologic trail near the Circle Creek Overlook, which engenders support for and knowledge of geologic resources and the need to protect them.

As described in the preliminary natural resources condition assessment, soils are also made vulnerable by drought and by the periods following fires, when there is a loss of protective vegetation, including lichens and mosses. Soils are threatened during patterns of heavy rainfall or local cloudbursts, when thinner slope deposits could be washed away and redistributed to drainage banks or depressions. Fire effects on soils are also dependent on the texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope (Erixson and Corrao 2011). Wind can remove fine organic and mineral materials from the soil surface and expose or deposit coarser fragments. Loess may be transported to City of Rocks via wind currents crossing other erodible areas. Soils developed on mountain and foothill slopes may be subject to erosion by wind and water (including sheet and rill erosion) and may be locally affected by landslides. Pollutants transported by air including chemicals, particulates, and others can also have a negative effect on soil development, soil microorganisms, the development of vegetation, lichens and moss on rock surfaces, and other plants.

Present actions include ongoing management of unpaved roads, parking areas, trails, climber staging areas, climbing routes, campgrounds, and visitor and administrative facilities. These actions continue to have localized minor adverse and negligible beneficial effects, primarily on soils, but some, such as the establishment of new permanent climbing routes, also have negligible to minor permanent effects on rock formations (geology). Current and future grazing on BLM and USFS allotments would be expected to have similar direct and indirect effects on geology and soils as described in the impact analysis for the alternatives and would continue to contribute minor beneficial and adverse cumulative effects. Recent actions by the Bureau of Land Management in the vicinity (Castle Rocks

Interagency Recreation Area) have also resulted in that bureau's decision not to construct additional trails or provide camping and to close existing sport and traditional climbing routes in that area. This action, if continued, would have negligible to minor beneficial effects on soils and geology on these nearby lands.

Threats posed to Reserve resources by recreational pursuits also include those from hiking, horseback riding, and camping. Where these uses occur on existing trails, impacts would continue to be minor. As recreational use increases, however, there may be an increase in soil erosion associated with these activities, especially if they cause an increase in staging areas, use of wet trails, or more off-trail use. As described in the preliminary natural resources condition assessment, the increased use of climbing areas and trails has produced notable degradation of soils and vegetation cover in staging areas (Erixson and Corrao 2011). The degradation of these areas may be attributed to a combination of foot traffic, equipment placement, and domestic dog shade-bed digging. As a result the Reserve has constructed fencing in areas near some popular climbing routes to curtail area degradation; however pet dogs are commonly tied to the fencing, intensifying the impacts of dog shade-beds both inside and outside the fences. Therefore, the Reserve has increased visitor awareness by using signs and patrols to reduce its occurrence. As a result, there would continue to be a range of cumulative beneficial and adverse effects related to these activities.

Future actions include the components of the alternatives in this GMP, combined with a variety of actions that could continue to occur on private lands or on applicable USFS and BLM lands outside the Reserve, such as additional energy development (wind, geothermal, and electric transmission lines) and the potential for expanded multiple-use actions by the U.S. Forest Service or Bureau of Land Management. These projects, such as wind energy development, could affect soils on hundreds of acres, with moderate to major cumulative impacts, if implemented. Effects on soils and geology would include use/displacement, wind erosion, compaction, surfacing, and loss of vegetative cover.

When actions in alternatives A–D are added to the effects of other past, present, and future actions, however, there would generally continue to be minor to moderate localized cumulative adverse and negligible to moderate cumulative beneficial impacts on soils and geology.

CONCLUSION

Alternatives A–D would have a range of negligible to moderate localized adverse and minor to moderate long-term beneficial effects. Adverse effects would be greater in alternatives A and D associated with a larger visitor center facility, while beneficial effects would be greater in alternatives C and D associated with an expanded Research Natural Area and boundary expansion that encompasses additional geological resources. Future reduction of the number of livestock or animal unit months and consolidation of allotments within the Reserve under alternatives B and C could have long-term beneficial effects if these actions (voluntary cessation or voluntary acceptance of buyouts) are initiated by grazing permittees. As design for development proposals occurred, these would be subject to additional environmental impact analysis.

PHYSICAL RESOURCES: IMPACTS ON WATER RESOURCES

IMPACTS ON WATER RESOURCES: HYDROLOGY AND WATER QUANTITY

a. Hydrology and Water Quantity Methodology

Context of impact: Water resources impacts were considered within City of Rocks National Reserve, on IDPR-leased land and IDPR-owned land.

Type of impact: Beneficial impacts would improve the condition or quantity of water resources, while adverse impacts would decrease these or affect beneficial uses.

Impact Intensity

Negligible	Impacts on hydrology and water quantity would be at or below the level of detection, would occur in a small area, and the changes would be so small that they would not be measurable or perceptible.
Minor	Impacts on hydrology and water quantity would be detectable, but localized, small, and of little consequence.
Moderate	Impacts on hydrology and water quantity would be readily detectable and have localized consequences on the health and functioning of an area or a measurable change to a hydrologic system.
Major	Impacts on hydrology and water quantity would be widespread, with substantial and regional consequences.

b. Hydrology and Water Quantity Impacts

ALTERNATIVE A IMPACTS

There would continue to be negligible to localized moderate adverse impacts from using water from two drinking water wells within the Reserve (Emery Pass and Bath Rock). There are four other wells within the Reserve on public and private property that are or were used for stock. The wells produce between 1.5 and 20 gallons per minute for Reserve administrative and maintenance operations, such as for maintaining equipment, landscaping, and drinking.

Potable water is a rare commodity within the Reserve that must be sought at centralized locations. It is also usually only available from May through October. Drinking water would continue to be available at the Emery Pass Picnic Area and between campsites 50 and 52. The water is pumped (powered by a photovoltaic system) and then piped underground to the Bath Rock parking area. This water is potable but often produces harmless orange algae. Both systems are closed and locked when nighttime temperatures are consistently below freezing. Because the Bath Rock well (on IDPR-owned land within the Reserve) and the Emery Pass

well (on NPS land) would continue to be used, there would continue to be minor to moderate long-term adverse effects on water quantity.

There would be long-term beneficial effects on hydrology from restoring the former Circle Creek impoundment area. Water would no longer be contained there but would flow downstream, improving ecological and hydrological functions in this altered riparian area.

Most months of the year surface water is also present in natural rock pools, such as atop Bath Rock and Shangri La. These and other smaller depressions consistently or intermittently retain water after snowmelt, rainfall, and runoff. These and other areas would continue to benefit wildlife.

Although no new well or water tank would be needed, providing water for the additional proposed recreational vehicle campground loop at Smoky Mountain would have additional long-term minor to moderate adverse effects on water quantity, depending on whether recreational vehicle hook-ups and showers are provided. Provision of showers could have moderate adverse effects on water quantity.

Developing a vegetation management plan for the Reserve would probably have indirect long-term beneficial impacts on improving water resources (including water flow), from identifying priorities for wetland and riparian restoration and from restoring vegetation in other habitats.

There would continue to be negligible to moderate or major localized adverse effects on hydrology and water quantity from grazing within the Reserve. These effects would occur from changing runoff patterns through diversion and use of water and from trampling riparian areas or wetlands that have not yet been fenced out of pastures. Updating the grazing management plan and continuing to fence out wetland and riparian areas would have long-term beneficial effects on water quantity, including in springs and riparian areas.

Four of seven grazing allotments still contain wetlands or other areas that need to be fenced to prevent livestock encroachment and to improve water resources and vegetation conditions, including:

- Graham Creek Allotment
- Kempton Allotment
- Emery Canyon Allotment
- Trail Canyon Allotment

Tracy Lane and Heath Canyon grazing allotments do not require wetland protection, nor does Circle Creek because it is no longer in use within the Reserve.

As noted in the preliminary natural resources condition assessment, the Almo and Circle Creek watersheds often have spikes in turbidity observed in conjunction with increased stream flow caused by precipitation events in combination with disturbed stream banks. The Almo Creek watershed has fewer exposed cut banks and less livestock use compared to the Circle Creek watershed; however, erosion and stream bank instability caused by frequent changes in water levels from irrigation diversions would continue to be investigated (Erixson and Corrao 2011).

Developing a replacement visitor center for the Reserve would have long-term adverse impacts on water quantity from the new use of water in a different location, while retaining current uses of water at the administrative headquarters. These impacts would be minor, however, because in addition to LEED standard adherence, low-flow toilets and minimal provisions for water use would be made.

ALTERNATIVE B IMPACTS

As in alternative A, there would be long-term minor adverse effects from continued use of water for Reserve operations, beneficial effects from restoring the Circle Creek impoundment, and beneficial effects from developing a vegetation management plan for the Reserve. There would also continue to be ongoing negligible to moderate adverse effects and long-term beneficial effects on hydrology and water

quantity from removing grazing from within wetlands and riparian areas within the Reserve; and long-term minor to moderate adverse effects on water quantity from constructing an additional camping area at Smoky Mountain, depending on whether hook-ups and showers are provided.

Because alternative B allows for an eventual decrease in the number of livestock and animal unit months through attrition, there could be fewer impacts associated with grazing allotments, although initially these would remain negligible to moderate and adverse from existing and/or modifying water diversion and use.

In alternative B, impacts from a new campground camping area could be reduced because fewer hook-ups for recreational vehicles would probably be required with the proposed emphasis on tent and group tent camping, and because vault instead of flush toilets would probably be provided. Because a new visitor facility would not be constructed, there would be no additional impacts on water quantity from additional use of water associated with that facility; however, long-term minor adverse impacts on water quantity would continue from the use of water at the Castle Rocks Administrative Unit.

In addition, a variety of beneficial and adverse impacts could result from potential water use for fire management in the Reserve. For instance, while slight beneficial effects could occur from pre-treatment of hazard fuels, loss of vegetation during fires could result in increased erosion and delivery of water to nearby watercourses, affecting hydrology.

ALTERNATIVE C IMPACTS

Ongoing negligible to minor or localized moderate adverse impacts associated with continued use of water for facilities, operations, and developing a replacement visitor center would be the same as described in alternative A. Because the visitor center would be slightly smaller in this alternative, there could be fewer impacts than in alternative A. If water was provided at the outdoor learning center

facilities, however, there would be additional negligible to minor localized adverse impacts on water quantity.

Because alternative C allows for an eventual decrease/elimination in the number of livestock and animal unit months from a possible reduction in grazing through voluntary buyouts, initially adverse impacts would continue to range from negligible to moderate from existing and/or new modifications related to water diversion and use.

As in alternatives A and B, providing water for the additional campground loop at Smoky Mountain would have long-term minor to moderate localized adverse effects on water quantity.

Expanded partnerships to better understand the potential effects of climate change on changing water supplies could have indirect long-term beneficial effects. Improving understanding of adequate water for wildlife and Reserve operations could have indirect beneficial effects on hydrology and water quantity.

ALTERNATIVE D IMPACTS

As in alternative A, developing a replacement full-service visitor center for the Reserve would have long-term minor to moderate adverse impacts on water quantity. Similarly, negligible to moderate adverse effects and long-term beneficial effects on hydrology and water quantity would continue to result from fencing out the remaining wetlands and riparian areas from grazing allotments within the Reserve. As in alternative A, developing a vegetation management plan would have indirect long-term beneficial effects. As with the other alternatives, providing water for the additional campground loop at Smoky Mountain would have long-term minor to moderate adverse effects on water quantity.

Compared to alternative A, there would be more short-term impacts associated with construction of new facilities and similar long-term impacts.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on water resources (as appropriate to the alternative) would include actions to:

- Locate staging and stockpiling areas away from surface water resources.
- Continue to fence out sensitive areas—such as riparian areas and other wetlands—from grazing allotments.
- Install construction fencing around, adjacent to, or near wetland and/or riparian areas to be protected, or use other erosion protection measures to minimize sedimentation.
- Minimize soil disturbance and revegetate disturbed areas as soon as practicable.
- Use vegetable-based hydraulic fluid in heavy equipment.
- Minimize the creation of impervious surfaces.
- Evaluate dams on lands acquired by the National Park Service to determine whether these areas can be restored.
- Exclude cattle from riparian areas through a variety of means, such as by providing alternate water sources or adding fencing, as appropriate.

CUMULATIVE IMPACTS

Because the Reserve is located in a semi-arid environment with few surface water resources, there has been a wide range of development associated with the water sources that do exist. Over time, these water resources have been used to provide water for livestock, homesteads, and ranches (including current and former private facilities) in the Reserve and its vicinity, as well as for administrative and visitor use. An unknown number of water diversions for cattle exist on private land, and approximately 12 spring box/trough water diversions, primarily associated with springs, exist on public lands within the Reserve.

Because most springs found within the Reserve are used for grazing, there would continue to be minor to moderate cumulative adverse effects. Among these springs are Tea Kettle, Bath Rock, Taylor, Indian Grove, Kempton, Logger, Mica, Button, Willow, Mahogany, North Fork Circle Creek, and Walters Creek. In most cases a head box is present, and water is piped away from the source for use by cattle. An unknown quantity of water is tapped in this way to support livestock grazing. Of the seven grazing allotments, Emery Canyon has two spring-boxes (with one trough each); Graham Creek has four springs, each with one trough. Bath Rock has one spring box (one trough). Kempton has one spring and one trough with a pipe to a private pasture. Tracy Lane has a trough on public land fed by a well on private property. Trail Canyon and Heath Canyon each have several troughs from water sources on private land. There are also two existing wells for public and administrative use that provide an unknown quantity of water. There are also an unknown number of springs in the Reserve that have not been developed for livestock use. There are also four wells on private lands within the Reserve.

Past actions include a variety of water supply developments in the Reserve on formerly private and current private lands. There would continue to be negligible to moderate adverse impacts on hydrology from impoundments on these privately owned lands in the Reserve. In addition to the Circle Creek impoundment that would be removed and restored, Circle Creek has six other earthen or alluvial dams. All but two are about 0.5 acres in size and are used for watering stock. The upper Emigrant Creek dam has been breached and the lower dam downstream also does not contain water. In addition to these dams, there are three stock ponds, one along Taylor Creek north of Bread Loaves and two associated with the Kelton-Boise stage station along Emigrant Creek. Combined these water impoundments have contributed to long-term minor to moderate cumulative adverse impacts on water quantity.

Present actions include seasonal and permanent use of water as noted above for livestock grazing; maintenance of existing impoundments on private lands within the Reserve; ongoing efforts to fence out riparian and wetland areas from grazing allotments; and continuing use of water for administrative and visitor facility management. Current and future grazing on BLM and USFS allotments would be expected to have similar direct and indirect effects on hydrology and water quantity, as described above. (Effects on water quality follow this section.) A recent assessment of eight drainages found all but Lower North Circle Creek to be in proper functioning condition. Lower North Circle Creek, which is located on a private ranch, was identified as functional but at risk of degradation, with a downward trend in measured attributes (Erixson and Corrao 2011). The condition assessment also identified unstable banks with little to no present vegetation, pronounced cut banks, and evidence of livestock use (Erixson and Corrao 2011).

Future actions would include those identified in the alternatives in this GMP, as well as the probable continued use of water on private lands within the Reserve and in the surrounding small towns as populations increase. If grazing was reduced through attrition (alternative B) or through voluntary buyouts (alternative C), there would be cumulative minor to moderate beneficial effects on hydrology and water quantity.

According to the 2013 Draft National Climate Assessment, as the air temperature warms, so can the water temperature in the park's freshwater systems (e.g., streams and wetlands). Compounding stressors can include competing demands (e.g., agriculture and population growth) for limited freshwater resources. Any increase in water temperature and evaporation along with increases in water withdrawal may affect aquatic communities. Extinctions of fish and other aquatic species are projected to occur from the combined effects of increased water withdrawal and a warmer climate (e.g., 47% of the trout habitat in the U.S. interior west would be lost by 2080 under one modeled

climate change scenario [A1B]). As changes occur in precipitation and land use in aquifer recharge areas, combined with changes in demand for groundwater over time, these will affect groundwater availability and recharge for springs, streams and wetland systems in ways that are not well understood (USGCRP 2013).

Increasing water temperatures and intensifying droughts will affect freshwater chemistry, such as reduction in dissolved oxygen concentrations, and increase in solubility and residence time of pollutants. Excessive runoff and flooding from storm events can accelerate erosion, carrying debris and pollutants into streams, exceeding their natural capacity to process sediment loads and pollutants. Climate change combined with other stressors can overwhelm the capacity of ecosystems to buffer the impacts from these extreme events.

When the impacts of alternatives A–D are added to other past, present, and future actions, there would continue to be minor to moderate cumulative adverse impacts on hydrology and water quantity, especially associated with water impoundment and use by humans or animals. Eventually, these effects could be reduced if grazing was voluntarily reduced or eliminated through provisions in alternatives C and D, resulting in potentially widespread cumulative beneficial effects. Future suburban or industrial development in towns surrounding the Reserve could increase the range of these cumulative adverse effects, depending on whether the water source was derived from aquifers related to the Reserve.

CONCLUSION

All alternatives would continue to have negligible to moderate localized adverse impacts on hydrology and water quantity. The contribution of management alternatives to cumulative effects, however, would primarily be minor and localized and would include some beneficial effects, such as reductions in water use for grazing if allotments were reduced through attrition or voluntary buyouts. Construction of a new visitor facility in alternatives A, C, and D would have minor long-term adverse impacts

on water quantity, as would the addition of campsites to Smoky Mountain Campground under all alternatives. If showers were added, these effects could be localized and moderate. Using LEED standards for new buildings would ensure that other hydrology and water quantity effects associated with these would remain minor.

IMPACTS ON WATER RESOURCES: WATER QUALITY

a. Water Quality Methodology

Context of impact: Water quality impacts were considered within City of Rocks National Reserve, on IDPR-leased land, and IDPR-owned land.

Type of impact: Beneficial impacts would improve water quality, while adverse impacts would degrade it.

Impact Intensity

Negligible	Chemical, physical, or biological impacts would not be detectable, would be within water quality standards or criteria, and/or historic or desired water quality conditions.
Minor	Chemical, physical, or biological impacts would be detectable, but would be within water quality standards or criteria and/or historical or desired water quality conditions.
Moderate	Chemical, physical, or biological impacts would be detectable but would be within water quality standards or criteria except for short-periods; historical baseline or desired water quality conditions would be temporarily altered.
Major	Chemical, physical, or biological impacts would be detectable and would be frequently altered from the historical baseline or desired water quality conditions. Chemical, physical, or biological water quality standards or criteria would routinely be exceeded.

b. Water Quality Impacts

ALTERNATIVE A IMPACTS

Adverse impacts on water quality could continue to occur as a result of recreational

activities, resource management activities, grazing, and construction. Long-term beneficial impacts would continue to occur as a result of protecting existing high elevations within Reserve watersheds (where headwaters occur) from additional development. According to state water quality standards, the creeks within the Reserve (Almo, North, South, and Circle creeks) are undesignated surface waters and have not been assigned beneficial uses; however, beneficial uses of undesignated waters are assumed to support cold water aquatic life and primary or secondary contact recreation (ID DEQ 2011, 2012).

Recreational activities: There would continue to be long-term negligible to minor adverse effects on water quality from visitor use activities, such as hiking, horseback riding, climbing, and camping. As noted in the soils section, erosion caused by bicycling, climbing, and horseback riding would probably continue to have the most impact, however, because there are few surface water resources and these activities would be unlikely to have adverse effects on water quality (such as sedimentation) in most areas. Impacts would also occur from horse and dog waste left on trails or in campgrounds. In addition, human waste is sometimes deposited near campsites, picnic areas, trails, and climbing areas, and is especially associated with dispersed visitor use. Human and dog waste may result in both unsanitary and unsightly conditions. Where impacts on surface water resources did occur, they would most likely be of greater intensity with the first flush after a rain event and would be localized and negligible to moderate.

Developing a trails management plan would have long-term beneficial effects on water quality by improving trail siting near wetlands and riparian areas and by treating erosion problems on existing trails. The trails management plan would help to ensure best management practices are followed in the construction of new trails. These practices include careful crafting of the trail alignment and proper trail construction techniques and would minimize impacts on water quality. As a result, there would be negligible to minor localized

adverse impacts on water quality in most areas from new trail construction. Where construction occurred for long distances or near wetlands or riparian areas, there could be localized moderate adverse effects, depending on the method of trail construction (for example, for a bridge, turnpike, or boardwalk).

There would also continue to be negligible to minor adverse impacts on water quality from improper disposal of wash water following cooking activities within the rim area campsites or Smoky Mountain Campground and at the Juniper group campsite. More widespread impacts could occur if wastewater was dumped near drainages, in locations where groundwater resources were close to the surface, or if runoff from spring or fall rains occurred soon after disposal.

Based on regular monitoring, the two existing wells used for administrative and public use meet Safe Drinking Water Act standards for potability and are minimally treated to provide potable water. Ongoing monitoring would continue to develop baseline information, a long-term beneficial effect.

Natural and cultural resources management: Continued water quality monitoring in partnership with the U.S. Fish and Wildlife Service, the NPS UCBN I&M Program, and the Idaho Departments of Environmental Quality and Fish and Game would improve Reserve understanding of water resources and potential threats to water quality, and could indirectly lead to long-term beneficial effects from actions to mitigate these. A 2009 UCBN inventory and monitoring study of five core water chemistry parameters (dissolved oxygen, pH, specific conductance, temperature, and turbidity) in the North Fork, South Fork, and Main Stem of Circle Creek found that all core parameters were within the general state regulatory thresholds, except turbidity and dissolved oxygen in the North Fork and Main Stem (Starkey 2010: p.13). Elevated stream turbidity typically occurs after rainstorms and is primarily caused by bank erosion, which is predominantly related to use of riparian areas and stream channels by livestock. Similarly, elevated one-hour dissolved oxygen

levels may also be related to grazing or may be related to another cause, but because of the small exceedance, dissolved oxygen levels were not considered to be a threat to water quality at the time. Because the Reserve is in the process of fencing off wetland and riparian areas from grazing allotments (see details in the “Hydrology and Water Quantity” section above), it is likely that this impact will decrease. In addition, because proposed future monitoring of these characteristics would occur approximately every three years, ongoing analysis may also lead to improvements in other parameters if these are later found to be below state water quality standards.

It is possible that increased turbidity is also related to the Reserve’s highly erodible soils. These contribute sediment to streams during high flows corresponding to storm events and spring snowmelt. If present, high stream sediment and associated turbidity could adversely affect stream organisms both in and outside the Reserve, far downstream from the source of particulate matter. Based on current data, however, this is unlikely to be occurring (Erixson and Corrao 2011).

There would continue to be a potential for negligible to minor adverse effects on water quality from use of a variety of methods (such as hand-pulling or chemical treatments) to reduce nonnative invasive plants.

Grazing: As noted in the comprehensive management plan (Reserve 1996a: p. 44), direct water pollution by livestock grazing under commercial grazing permits would be prevented by eliminating existing corrals and watering sites near streams and springs that originate in the Reserve. Cattle concentrated in riparian zones accelerate soil erosion and contribute fecal coliform to Reserve streams and springs during stormwater runoff, potentially affecting water resources far downstream from the source. Trampling near springs and riparian areas may lead to bank erosion and could affect attainment of Idaho water quality standards.

As a result, a variety of strategies would continue to be used to develop alternate water sources

and to move stock water tanks and livestock away from riparian areas and wetlands on public lands. The Reserve would also continue to work cooperatively to assist private landowners in relocating water sources or mitigating damage to wetlands caused by grazing. To the extent that these actions have occurred since the 1996 comprehensive management plan, there have been minor to moderate localized long-term beneficial effects on water quality.

Construction: New construction under alternative A would include the proposed visitor use facility at Smoky Mountain and expansion of the campground. Both would have the potential for short-term negligible to minor adverse impacts on water quality that would be minimized through the use of best management practices.

ALTERNATIVE B IMPACTS

Adverse impacts associated with most recreational use, most resource management activities, grazing management, and most construction would be the same as described in alternative A. Negligible long-term beneficial impacts would continue to occur as a result of protecting watersheds from additional development and/or from reducing grazing through attrition.

Development of a plan to mitigate potential erosion associated with highly erodible granitic soils would probably have long-term beneficial effects on water quality from preventing sedimentation that could occur following fires. Working with the county to better control water flow off the road (to disperse rather than concentrate it) would have long-term beneficial effects on water quality by reducing gullying and erosion from water flow that could otherwise carry sediment into nearby water bodies.

Although additional impacts could also occur from ground disturbance associated with constructing the equestrian staging area and amphitheater, there would probably be no additional impacts associated with constructing a new visitor use facility within the Reserve or on IDPR-leased land because the current visitor center house would be remodeled. If

a new building was constructed by the Idaho Department of Parks and Recreation, impacts would be the same as in alternative C. With the equestrian staging area near the Bread Loaves intersection and a turnaround at Logger Springs Road, there would be a potential for short- to long-term negligible to minor adverse impacts on water quality associated with exposed soils during construction and use, depending on the surfacing material used and the success of stabilization measures following construction.

The hazard fuel reduction and fire use proposed as part of alternative B may also result in loss of vegetative ground cover, leading to a temporary increase in erosion following fires. Runoff from burned areas could also have negligible to minor short- or long-term adverse effects on water quality from changes in the chemical composition of runoff, including from transporting ash. Because ash is alkaline and because an influx of nutrients may cause algae blooms, there may also be a change in water pH. If plant communities near water are consumed by fire, increased water temperatures, caused by limited shading and increased nutrient cycling, may result. This could, in turn, decrease the availability of oxygen to fish and other aquatic organisms. There may be less organic material available to decrease runoff, and downstream flooding may occur. Additional erosion of ash and soil may result in gullying and loss of topsoil, which may result in aggradation of the stream channel and temporarily alter water depths. Often a short-term flush of sedimentation in river and stream channels occurs after the first rains. Because of limited water resources and the limited likelihood that burned areas would be near water, effects on water resources would probably remain negligible to minor.

There could also be limited impacts from the potential use of chemical fire retardant and firefighting foam upon fire escape or for suppression activities. Other uses of foam would be to prevent damage to sensitive cultural resources. Because use of chemical retardants and foam would be limited near surface water resources, impacts would be expected to be negligible to minor.

Potential negligible to minor adverse effects on water quality could also occur from construction of a new multiuse trail connecting to Tea Kettle Trail (approximately 2.5 miles long) that would connect California Trail resources for hikers, equestrians, and bicyclists.

Restoration would generally have long-term beneficial effects by promoting the reestablishment of native vegetation through seeding or planting. Increasing plant cover could help reduce existing erosion and sedimentation of surface waters by retaining water for uptake, thereby interrupting soil loss. Though there would also be a possibility that unsuccessful restoration would temporarily leave areas of bare ground, unless loss of plant cover occurred over a wide area or for a long period, most changes in water quality would be localized and beneficial (such as from reduced sediment transport to surface waters).

ALTERNATIVE C IMPACTS

Impacts associated with recreational use, resource management activities, grazing management, fire management, and construction would be similar to alternative B, except that a new visitor use facility (similar but smaller than in alternative A) and an outdoor learning center would also be constructed. There would also be approximately two miles of new trail constructed to the summit of Smoky Mountain from the campground. Combined, these would add to the potential for negligible to minor adverse impacts on water quality but would probably remain minor because of implementation of mitigation measures. Beneficial impacts could also occur, depending on whether permittees take advantage of grazing buyouts.

As in alternative B, negligible long-term beneficial impacts would continue to occur as a result of protecting watersheds from additional development. When proposed boundary expansion areas are included, beneficial effects could be minor.

ALTERNATIVE D IMPACTS

Impacts associated with recreational use, resource management activities, grazing

management, fire management, and construction would be similar to those described in alternatives B and C, except that no outdoor learning center would be constructed, the visitor center facility would be larger, and the Logger Springs turnaround would include parking. As in alternative C, these could increase potential negligible to minor adverse impacts on moderate and localized, but impacts would continue to be limited because of implementation of mitigation measures. As in alternative B, negligible long-term beneficial impacts would continue to occur as a result of protecting watersheds from additional development. When proposed boundary expansion areas are included, beneficial effects could be minor.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

In addition to the measures identified in the “Hydrology and Water Quantity” section, the following additional measures would benefit water quality:

- Modify livestock grazing permits to exclude wetlands and riparian areas.
- Develop only water sources that do not directly modify wetlands or change the timing, distribution, or amount of water supply to wetlands on public lands.
- Improve erosion control best management practices along roadways in the Reserve.
- Encourage permittees to lessen impacts on wetland and riparian areas and areas of concentrated use.

CUMULATIVE IMPACTS

See the “Hydrology and Water Quantity” section above for a discussion of cumulative impacts on hydrology, water quantity and water quality.

When actions in alternatives A–D are added to the effects of other past, present, and future actions affecting water quality, there would be minor to moderate adverse cumulative impacts combined with negligible to minor beneficial cumulative impacts.

CONCLUSION

Alternatives A–D would continue to have the potential to cause short- and long-term minor cumulative adverse impacts on water quality due to ongoing

administration and management of the Reserve, existing visitor use activities, and proposed new development, including trails, visitor use facilities, and other improvements. Depending on whether these activities occurred near surface water resources, some impacts could be locally moderate but would be minimized by the use of best management practices, resulting in some cumulative beneficial effects.

IMPACTS ON WATER RESOURCES: WETLANDS

a. Wetlands Methodology

Context of impact: Wetland impacts were considered within City of Rocks National Reserve, on IDPR-leased land and IDPR-owned land.

Type of impact: Beneficial impacts would restore or maintain wetlands, while adverse impacts would degrade, develop, or convert wetlands to another ecological community.

Impact Intensity

Negligible	Impacts would be imperceptible or not detectable.
Minor	Impacts would be slightly detectable, localized within a small area, and would not affect the overall viability of wetlands.
Moderate	Impacts would be apparent, but could be reversed.
Major	Impacts would be substantial, highly noticeable, and permanent.

b. Wetlands Impacts

ALTERNATIVE A–D IMPACTS

According to the comprehensive management plan, groundwater use outside the Reserve, combined with drought, may have decreased water flow to springs in the region (Reserve 1996a: p. 111). Groundwater use in the Reserve may have a minor adverse effect on nearby springs and streams, although the number of wells is relatively small compared to those outside the Reserve (there are two wells on public land and four others within the Reserve on private property).

Surface water resources within the Reserve include springs and creeks. City of Rocks is drained by four creeks (Graham Creek and the North, Center, and South Forks of Circle Creek) as well as numerous other named and unnamed streams that drain Steinfeld's, Emigrant, and Twin Sisters basins and the Inner City. These eventually flow into the Raft River (see the "Water Resources" section in "Chapter 4: Affected Environment" and "Figure 16: Hydrology"). As described in "Hydrology and Water Quantity," most springs in the Reserve are used for grazing, including Tea Kettle, Bath Rock, Taylor, Indian Grove, Kempton, Logger, Mica, Button, Willow, Mahogany, North Fork Circle Creek, and Walters Creek. In most cases a head box is present, and water is piped away from the source for use by cattle. Of these springs, the following are among those located on public lands: Bath Rock, Indian Grove, North Fork Circle Creek, and Tea Kettle.

Development and use of water from springs and attendant wetlands to support livestock would continue to have a minor to moderate or major adverse impact on wetlands. This would occur due to water consumption and depletion and the trampling of sensitive areas, leading to an increase in compaction, as well as changes to vegetation and/or streambank channels, and other effects.

Grazing allotments contain approximately 80 wetlands that have been identified as part of the National Wetlands Inventory (table 42). Because there are no specific changes associated with the alternatives in this plan that would affect wetlands, a statement of findings is not required. Based on an assessment of wetlands impacts related to current grazing practices, a "Wetlands Statement of Findings," in compliance with Executive Order 11990, "Protection of Wetlands" and NPS Director's Order 77-1, would probably be required for the revised grazing management plan. This plan would address new short-term impacts from improving livestock water sources, which would add to long-term beneficial effects by reducing impacts on riparian areas and wetlands and from grazing impacts in potential boundary expansion areas.

TABLE 42. NATIONAL WETLANDS INVENTORY DATA FOR GRAZING ALLOTMENTS

Wetland Type(s)	Allotment						
	Graham Creek	Bath Rock	Circle Creek	Emery Canyon	Kempton	Trail Canyon	Tracy Lane
R4SBA	1	1	1				
R4SBC	4		3				
R4SBO	2					1	
PEMA		1		3	2		
PEMB	1	2				2	
PEMC	4	3	4	8	4	4	2
PEMFh			1				
PFOC	2			1			
PSSA							
PSSB	2	1	2				
PSSC	9		3	3			
PUBFh				1			2
TOTAL	25	8	14	16	6	7	4
Creeks identified in 2008 Grazing Management Plan	Graham Creek 1.5 miles North Fork Circle Creek 1.0 mile Main Fork Circle Creek	2 unnamed creeks	Circle Creek 1.0 mile total 0.25 mile in Reserve Unnamed creek	2 forks of Emery Canyon Creek	2 spring-fed unnamed creeks	Trail Creek 1.5 miles Junction Creek 0.5 mile	Junction Creek tributary 0.5 mile on BLM land
Springs identified in 2008 Grazing Management Plan	2 unnamed Indian Grove Taylor Springs (2) on southwest edge	1 unnamed spring Tea Kettle Spring	0	Taylor Springs (2) Emery Canyon Spring	1 unnamed spring on northwest edge	2 unnamed springs	

(USFWS 2012b) *Note: No National Wetlands Inventory data was identified in the Heath Canyon or Smoky Mountain allotments; however, the grazing management plan map for Heath Canyon shows two spring-fed tributaries of Emigrant Canyon Creek and two springs.*

Key

R4SB = riverine, stream-bed

PEM = palustrine emergent

PFO = palustrine forested

PSS = palustrine scrub-shrub

PUB = palustrine unconsolidated bottom

A = temporarily flooded: Surface water present for brief periods during growing season, but the water table usually lies well below the surface most of the season.

B = saturated: Surface water seldom present

C = seasonally flooded:

F = semi-permanently flooded: Surface water persists throughout the growing season in most years. When surface water is absent, the water table is at or near the surface.

h = diked or impounded

O = open water

Homestead and ranching development of water resources has led to the seven impoundments within the Circle Creek basin, however, only one of these is on public land. The Circle Creek impoundment (#1) is located at the eastern boundary of the Reserve, several hundred yards upstream of where Circle Creek exits the Reserve (BOR 2005). This obsolete facility would be removed by recontouring the area to improve natural hydrological functions and to restore the former riparian wetland. Approximately 5 acres are planned for restoration. All but two of the Circle Creek impoundments contain about 0.5 acres of water and are used for watering stock. Another stock pond is located along Taylor Creek north of Bread Loaves and two stock ponds associated with the Kelton-Boise stage station occur along Emigrant Creek. These are also located on private property and would not be affected by the actions in this plan.

Livestock entering pastures before scheduled dates or entering while a pasture is scheduled for rest could impact areas that are still too wet to handle grazing and may also cause loss of vegetation, particularly in sensitive areas such as wetlands. To the extent that the Reserve permittees adhere to conditions identified in the grazing management plan, these effects would not occur or would be reduced.

According to the vegetation map in the Reserve's comprehensive management plan, which is based on National Wetlands Inventory and other data for the Reserve, approximately 2.6% of the Reserve is covered by riparian or wetland areas (Reserve 1996a: p. 112). This means that of the approximately 14,407 acres contained within the Reserve, approximately 375 acres are composed of riparian and herbaceous perennial wetlands. However, the comprehensive management plan evaluated impacts from grazing on nearly twice this area by including wetland buffer zones. These sensitive adjacent areas were identified based on general vegetation map data. This resulted in the identification of 458 acres on private land and 266 acres on public land (Reserve 1996a: p. 147, 374–75). Wetlands primarily occur in the Circle Creek Basin on

private property, near the Taylor property in the northwest part of the Reserve, and on the Ward property in the southeast/central part of the Reserve, but they are widely distributed throughout the Reserve in suitable areas based on the presence of water, soils, and vegetation. Based on environmental impact analysis in the comprehensive management plan, livestock grazing has resulted in a range of adverse impacts on wetlands. These impacts include diversion of water for livestock use, trampling of springs and riparian areas, loss of native wetland vegetation, changes in stream channel shape, erosion, and invasion by nonnative plants. To describe some of these impacts, a wetlands statement of findings was included with the comprehensive management plan, the effects of which are also summarized in this analysis.

Based on the comprehensive management plan (Reserve 1996a: p. 44), a variety of livestock management techniques were proposed to limit livestock access to wetlands. These techniques vary depending on the sensitivity of wetlands in a particular area and the type of water resource (spring or creek or seasonal depression). Where fences/exclosures are not used and where water is not piped away from springs, livestock may alter the pattern of overland water flow and reduce vegetative cover and soils, leading to impacts on water quality, including from waste and sedimentation. Where fences or other restrictive barriers are built to keep livestock temporarily or permanently out of wetlands, soils stabilize and allow wetland vegetation recovery; however water is often still piped away from the wetland for livestock (and then returned via an overflow pipe). In other areas, grazing rotation and deferred seasons (postponing grazing following wet periods) are used to protect wetlands and riparian areas when they are most vulnerable to damage. In addition, on public lands, stock water tanks fed by springs and streams have been systematically moved away from wetland and riparian areas.

Since the comprehensive management plan was completed, the Register Rock property was purchased (2006) and grazing was discontinued to protect springs and an intermittent stream

along the California National Historic Trail. To protect California Trail resources, grazing was also relocated from the Circle Creek allotment (including the lower Circle Creek riparian area) to the Kempton allotment (2008). That same year, a public-private partnership allowed the placement of a trough and associated water piping system at the boundary of the Emery Canyon allotment and adjacent private property to reduce cattle use of the riparian area within the allotment. In 2009, Nematode Spring was fenced off from cattle and in 2012 the Indian Grove wetland was fenced to exclude cattle from the Graham Creek allotment in this area. Reconstruction/replacement of the Indian Grove water trough in 2010 also reduced unnatural saturation of the riparian area. In addition, the Reserve has continued to treat nonnative invasive plants in riparian areas. Combined, these actions have resulted in long-term localized minor to moderate beneficial impacts on wetlands.

ALTERNATIVE B–D IMPACTS

There would be little change in impacts on wetlands under alternatives B–D. Proposed changes in livestock numbers or season of use could occur in alternative B, where attrition results in a reduced number of grazing permittees, and in alternative C from voluntary participation in the buyout program. Other actions that would adversely affect wetlands include additional development of springs to provide new water sources for grazing allotments, a moderate localized adverse effect with continued short-term impacts from relocating livestock grazing and water use from wetland and riparian areas. This and other specific actions could be implemented following approval of a revised grazing management plan. Beneficial impacts would be similar to alternative A, with the potential for slightly more beneficial effects in alternatives B, C, and D based on expansion of the Research Natural Area (where the no-grazing exclusion would extend to additional lands) and improvements in mitigation measures as well as potential reductions in grazing in alternatives B and C. In all alternatives, a systematic reduction

in grazing impacts would probably continue as a result of ongoing mitigation measures to avoid or change the timing of use of land near springs and riparian areas, which would result in long-term beneficial impacts. A reduction in adverse impacts would also occur in alternatives B–D, with the restoration of the Circle Creek impoundment (#1).

The ongoing impacts of continuing to exclude riparian and wetland areas from livestock use would be beneficial in the long term but would continue to have short- and long-term minor to moderate or major localized adverse impacts from the continued withdrawal of water from its natural source to support livestock. Where grazing was reduced or eliminated (alternatives B and C), this impact could also diminish.

Based on recommendations in the 2008 draft grazing management plan, additional actions to protect wetlands are still needed in the following areas: Graham Creek, Kempton, Emery Canyon, Trail Canyon, Tracy Lane, and Heath Canyon. Most allotment recommendations note that “a special effort will be made by the permittee to lessen impacts on riparian zones and areas of concentrated recreational use” (Reserve 2008a). Some also include recommendations for spring development and piping water away from springs, as well as for development of new water sources. While spring development and piping water away from springs would have minor to major adverse effects, the development of new water sources could have long-term minor to moderate localized beneficial effects if these were outside the Reserve or from importation or rainwater collection.

Initially in alternative C and over the long-term in alternative D, there would also probably be short- and long-term minor to moderate or major localized adverse impacts from continuing to allow grazing in boundary expansion areas transferred from the Bureau of Land Management or purchased, especially where these contained wetlands and where existing allotments would continue. If a boundary expansion occurred (through congressional legislation), the impacts of continuing grazing would be analyzed in a revised grazing

management plan, including regarding the potential for ongoing or new impacts on wetlands. It is uncertain, however, whether the agreement with the Bureau of Land Management or expansion legislation, if enacted, would contain continued provisions for grazing.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

In addition to measures that would minimize impacts on water resources identified in the above “Hydrology and Water Quantity” and “Water Quality” sections, which would also reduce effects to wetlands, the following measures would be included:

- Avoid adverse impacts on wetlands and riparian areas when constructing buildings or other facilities on public land.
- Complete jurisdictional wetland surveys for potential impacts associated with trails and avoid impacts on the extent possible.
- Refrain from increasing animal unit months by continuing to reallocate animal unit months to existing permittees, including family members, if grazing allotments are vacated within the Reserve.
- Delineate wetlands to determine site hydrologic, soil, and vegetation characteristics when work is proposed near springs and riparian areas.
- Encourage permittees to lessen impacts on riparian zones and areas of concentrated recreational use, and to implement other actions called for by the 2008 draft grazing management plan.

CUMULATIVE IMPACTS

Over time there has been a loss of wetlands and riparian areas throughout the West, including within the Reserve. Wetlands and riparian areas have been affected by harvesting water sources for irrigation, livestock and human use, and development. Irrigated and dryland farming both within and outside the Reserve have resulted in vegetation type conversion from historic vegetation patterns—including in wetland and riparian areas—to nonnative and

invasive nonnative vegetation. Human activities have resulted in the widespread distribution of nonnative species that would continue to impact these areas, even in the absence of additional human disturbance. It is likely that human activities have also affected the biologically rich riparian and wetland areas of the Reserve, including their component microscopic plants and animals, insects, amphibians, and fish; however, the degree to which these have been affected is unknown.

Past actions have had a major adverse impact on wetlands (Reserve 1996a: p. 148). Past actions and external threats include light grazing to severe soil erosion, dewatering (removal or redirecting of a water source), loss of wetland vegetation, and filling of wetland depressions and stream channels. Past actions have also included excavating or constructing dams and stock ponds. Past actions that have contributed to the loss of wetlands and riparian areas in the Reserve include the diversion of surface water resources to stock ponds and the creation of dams and spring boxes to irrigate fields and water livestock. Widespread grazing in the Reserve has resulted in loss or damage to wetland and riparian vegetation as cattle seek water sources. The several deep water wells in the Reserve and vicinity have probably contributed to reduced surface water resources and/or flow. Natural fluctuations in rainfall and climate have also contributed a range of impacts on water resources. For instance, the West was in a wet period during the early homesteading era, and this allowed the development of homesteads and farmland in areas that could not support these activities during the more common dry periods.

Past beneficial effects include the closure of the Circle Creek grazing allotment in 2008 and relocation of its allocation (animal unit months) to the nearby Graham Creek allotment. This resulted in the closure of numerous wetland/riparian areas to grazing, a long-term localized beneficial effect. Modifications to private grazing areas would continue to depend on the desire of private landowners to use wetland protection methods based on the advice of the

Reserve, the Natural Resources Conservation Service, or others. Privately owned wetlands would probably continue to correspond to those identified in the comprehensive management plan, or more than 400 acres (2%) of the Reserve. Where changes were made to avoid or decrease impacts, there would be additional long-term beneficial effects.

Current and future grazing on BLM and USFS allotments, such as in those included within the potential boundary adjustment area in alternatives C and D, would be expected to have or have had similar direct and indirect effects on wetlands as described above, including loss of water to livestock production.

Present actions, such as the grazing of livestock, would also continue to have minor to moderate localized adverse effects on wetlands and riparian areas in the Reserve. As noted in the comprehensive management plan, until fenced out of wetland and riparian areas, cattle would continue to be attracted by the amount of forage and the availability of water in these areas and would tend to concentrate in them, where they would continue to introduce or affect the spread of nonnative invasive plants, overgraze protective vegetation, and reduce soil stability by trampling. Loss of riparian vegetation and unstable soils could accelerate soil erosion, elevate stream sediment loads, and change stream flows and channel morphology. Diversion of water from streams or springs for irrigation and stock watering during seasonal or extended drought could also reduce stream flows below the minimum needed for other wetland-dependent wildlife. The effects of the destruction or loss of natural riparian vegetation, erosion, and water diversion could result in reduced abundance, biomass, species diversity, reproductive success, and survival of wetland-dependent and other wildlife (Reserve 1996a: p. 147). Ongoing efforts to fence out livestock and to relocate stock watering areas away from riparian areas on public lands would continue to reduce these impacts, a long-term localized beneficial effect.

Other present actions, such as the diversion of water from wells for recreational use, would probably continue to have an unknown effect on surface water resources within the Reserve. Moreover, the persistence of stock ponds and other water diversions on private lands would continue to have long-term minor to moderate localized and minor widespread effects. To the extent that former impoundments fell into disuse or were restored as acquired or abandoned, there would be long-term localized beneficial effects. Improving these opportunities for wetland and riparian areas to recover could reestablish historic functions for native wildlife and plant communities.

Wetlands mitigation projects that are implemented to compensate for nearby impacts would continue to have long-term minor localized beneficial effects: the restoration at Castle Rocks State Park for the City of Rocks Back Country Byway is an example of this type of mitigation.

Future projects on public land, such as the proposed restoration of the Circle Creek impoundment (#1), would have a variety of short-term minor adverse and cumulative beneficial effects. Other impacts associated with this GMP would be mostly beneficial, including the completion of livestock exclusion techniques, such as fencing, and the seasonal grazing allotment rotation or deferred grazing called for by the grazing management plan. Minor to moderate localized cumulative beneficial effects would be contributed by zoning a larger area for the California Trail in alternatives B, C, and D (with the largest area in alternative C), especially if livestock grazing was eventually reduced in these areas. Slight modifications to the Research Natural Area in alternative B and increased area associated with the Research Natural Area in alternatives C and D would also have cumulative beneficial effects, because livestock grazing would continue to be excluded in the Research Natural Area. In alternatives B and D, potential exclusion of livestock grazing in the Visitor Facilities and Access Zone or its reduction during peak visitor use periods could also result in long-

term beneficial effects, though they would only be slightly beneficial because of the small area covered by wetland or riparian vegetation types in this zone. Over time, actions in alternative B could lead to reduced livestock grazing within the Reserve through attrition if permittees discontinue requests for permits caused by changing business models or abandonments. Similar reductions could occur in alternative C if voluntary buyouts occurred. In all alternatives, grazing allotments could also be rearranged to provide maximum beneficial effects to natural and cultural resources. In alternative C, as in other alternatives, wetland and riparian areas would continue to be fenced out of allotments, allotments would be reduced or eliminated in the California Trail Zone, and some aspen areas would be protected from grazing impacts. Combined, these would create cumulative beneficial effects if implemented and would also reduce the cumulative impacts of alternative C.

The climate future from the draft National Climate Assessment would be the same as described in cumulative effects for other water resources sections, including hydrology and water quantity and water quality.

When actions in alternative A and D are added to the effects of other past, present, and future actions, there would continue to be minor to moderate localized cumulative adverse and negligible to moderate beneficial effects. When actions in alternatives B–C are added to the effects of other past, present, and future actions, there would be minor cumulative adverse effects and negligible to moderate cumulative beneficial effects. These would include a potential reduction in livestock grazing in the California Trail Zone in alternatives B and C, and a similar potential reduction of grazing in the Visitor Facilities and Access Zone in alternatives B and D, as well as any potential reduction that occurs through attrition (alternative B) or voluntary buyouts (alternative C).

CONCLUSION

Alternative A would continue to have short-term minor to moderate or major localized adverse effects, as well as long-term negligible to moderate beneficial effects. Alternatives B–D would have short- and long-term minor to moderate or major localized adverse effects, and negligible to moderate long-term beneficial effects that would be somewhat greater in alternatives B and C than in alternative D.

BIOLOGICAL RESOURCES

BIOLOGICAL RESOURCES: VEGETATION

a. Vegetation Methodology

Vegetation analysis was based on a qualitative assessment of project area vegetation and the effects anticipated as a result of ongoing maintenance, construction, or rehabilitation. In some cases, quantitative analysis was used to predict the effects of vegetation loss. This analysis was based on the likely amount of disturbance (removal of or damage to vegetation) from construction compared to current conditions. It also considers the benefits of site restoration. Assessment was also made of the potential for proposed projects to introduce or spread nonnative plant species, such as noxious weeds.

The geographic extent of plant communities has been determined through field and aerial vegetation mapping. Field reconnaissance of areas of potential impact is used to analyze plant community types and to look for any state and federally listed sensitive, rare, threatened, or endangered species. Human use can decrease or alter native vegetation cover, disturb or compact soils, and create conditions favorable for existing nonnative species or the introduction of nonnative species. Because human-use impacts, such as recreational use, can extend beyond developed areas and affect plant community size and continuity, the potential for these indirect impacts beyond development boundaries was considered in determining the intensity of impacts on vegetation.

The evaluation of the integrity of plant communities was based on:

- **Biodiversity** (includes diversity of communities within an ecosystem, species within a community, and genetic variation among individual species): Measures of biodiversity may include plant community structure and composition, connectivity of ecosystems, variation in age, structure (density and arrangement), individual species composition and abundance, and the presence or absence of natural structural layers.
- **Invasive species introduction and spread:** Invasive plants are aggressive nonnative species that pose an ecological threat to the community in which they are found. These invasive nonnative species can alter soil chemical and physical properties, hamper native species establishment, and alter plant community structure and function. This impact analysis considered whether proposed actions would favor the establishment of nonnative species and the ability to contain and reverse nonnative plant infestation.
- **Resilience of the plant community:** Resilient plant communities are more capable of withstanding human impacts without long-term deformation (changes that result in a loss of native species) because they can recover more quickly.

Context of impact: Vegetation impacts were considered within City of Rocks National Reserve, on IDPR-leased land, and IDPR-owned land.

Type of impact: Beneficial impacts would restore native vegetation or allow native vegetation to recover, while adverse impacts would result in damage to or loss of vegetation or conversion to another vegetation type. Actions that reduce the size of or disrupt the continuity and/or integrity of native plant communities are considered adverse impacts. Ground disturbance and imported materials such as soils, gravel, or nonnative plants can adversely impact native plant communities

because they provide the means for nonnative species to become established. Restoration of disturbed areas can be done using native seeds and plants. Native plants and soil can be salvaged prior to disturbance and used during restoration to hasten establishment of native communities, and mulch or other stabilizing materials may accelerate site recovery and reduce opportunities for the establishment of nonnative plants. Actions that preserve and/or restore these essential components of native plant communities constitute beneficial impacts. New development within an otherwise intact and undisturbed area may fragment or disassociate plant communities. Small areas of restoration surrounded by existing or new development may have fewer beneficial effects than restoration of a small area adjacent to a larger intact vegetation community. In general, reducing and limiting fragmentation and maintaining connections within and among plant communities can minimize adverse effects.

Impact Intensity

Negligible	Impacts would have no measurable or perceptible changes in plant community size, integrity, structure, or function. Individual native plants could be affected, but there would be no effect on plant populations. There would be no increase or barely detectable increases in the number of nonnative invasive species and the extent of their range. Effects would generally be short-term and small-scale.
Minor	Impacts on the size, structure, integrity, diversity, or function of a plant community would be measurable or perceptible but would be localized within a relatively small area and would not affect the overall viability of the plant community. Individual plants and/or a small segment of plant populations could be affected. Changes in the extent of nonnative invasive species would be short term, localized, and measurable.

Moderate	Impacts would cause a change in the plant community (e.g., size, integrity, diversity, structure, or function); however, the impact would remain localized. The change would be measurable and perceptible but could be reversed. Impacts would affect some individual native plants and could also affect a sizeable portion of the population in the long term and over a large area. Changes in the extent of several or more nonnative species would occur over a relatively long period of time. Nonnative invasive plants could spread beyond the localized area.
Major	Impacts would be widespread and could be substantial, highly noticeable, and permanent in their effect on plant community size, integrity, diversity, structure, or function. Changes would have a considerable long-term effect on native plant populations and nonnative invasive plants.

b. Vegetation Impacts

ALTERNATIVE A IMPACTS

Visitor use activities: There would continue to be negligible to minor impacts on vegetation from visitor use activities resulting in off-trail trampling of vegetation. Such activities could include hiking and hunting. Visitor use activities such as climbing, mountain biking, horseback riding, and camping would have ongoing minor to moderate localized adverse effects. Among these would be loss of vegetation from “cleaning” of rock surfaces during climbing, compaction and accelerated erosion of soils on and adjacent to trails from mountain biking, vegetation damage or loss due to horseback riding, and damage to or use of vegetation associated with camping.

There would also continue to be long-term minor to moderate localized adverse effects on vegetation from the creation of social trails associated with visitor use, including trails between campsites; paths around obstacles, such as wet depressions in designated trails; trails to scenic overlooks; and trails between climbing rocks. These impacts would include compaction of soils and damage to or loss of vegetation.

When new sport climbing routes are proposed, these undergo a site analysis that involves investigation of the proposed access trail and staging area, skill level required for the climb (which serves as a potential measure of expected use because easier climbs generally receive more consistent use), rock face, evidence of wildlife use, and a survey for archeological resources. As a result, vegetation impacts would continue to be identified and minimized prior to use.

As noted in the “User Capacity” section, the number of dog depressions caused by dogs digging at climbing staging areas has increased. Some visitors bring dogs with them to climbing staging areas and then tie the dogs to a post in the staging area while climbing, resulting in unattended dogs or dogs left for long periods that impact vegetation and soils. According to the “User Capacity” section, a planning team workshop held at the Reserve in December 2011 identified an estimated 2 to 15 depressions at most climber staging areas. These impacts would probably continue and could increase under alternative A.

County road management: Ongoing management of the county road would continue to have negligible to minor adverse effects on vegetation from trimming of roadside vegetation, erosion, and use of magnesium chloride to reduce dust. A study by Colorado State University Professor William Lewis found that “magnesium chloride applied to roads is rapidly diluted, causing insignificant effects” (Best 2004), however additional studies examining the effects of magnesium chloride on vegetation and water resources in Larimer and Grand Counties, Colorado, have found that road salts, including magnesium chloride, cause dieback in vegetation. These studies also found that although chloride concentrations did not increase over two years of application, both chloride and magnesium were present in higher concentrations between three and six meters from the road, depending on whether the measurements were taken on the upslope or downslope sides (Goodrich, Jacobi, and Koski 2009). As a result, there could continue to be minor adverse effects on vegetation and soils adjacent to the roadway.

Because the road is only plowed from the east entrance to Bath Rock in winter, driving during wet conditions in the early and late season could lead to washboarding or gullying and the need for regrading, which could also affect roadside vegetation. The Reserve would continue to work with Cassia County to maintain the road to minimize impacts on vegetation.

Nonnative invasive plants: Nonnative invasive plants would continue to be targeted for treatment by Reserve or exotic plant management team staff. The Northern Rocky Mountains Invasive Plant Management Plan (NPS 2011) would continue to be used to refine priority areas for the treatment of nonnative invasive plants. Treatments would be evaluated based on the management strategies in that plan. Treatments are designed to minimize effects on non-target species. Although there would continue to be negligible to moderate adverse impacts from the presence of nonnative invasive plants, in some areas these impacts would diminish over time from treatment of priority areas, a minor to moderate localized beneficial effect.

Historic vegetation: Managing the historic vegetation associated with the California Trail corridor would benefit long-term native plant diversity from the identification and maintenance of native plants important to the emigrant experience. This management would also contribute long-term negligible to minor adverse effects on native plant communities by retaining a vegetation type based on the characteristics it had when first viewed during the California Trail emigration, rather than allowing natural changes to occur in vegetation communities over time. Developing a vegetation management plan would help define historic plant community characteristics and identify and prioritize areas for restoration based on these characteristics, a long-term beneficial effect.

Fire management: An update to the fire management plan would improve the ability of the Reserve to identify and mitigate the effects of unwanted fire on the landscape before it occurred. This could be achieved using hazard fuel reduction in sensitive and developed areas. Hazard fuel reduction and other fuels

management activities would focus on reducing the damaging impacts of unwanted wildfire on the Reserve's natural and cultural resources. Fuels management practices would have long-term minor to moderate beneficial effects on the condition of some resources, such as pinyon pine, by reducing fuel loads that might otherwise lead to higher intensity wildfires. The use of fuels management to protect visitors and infrastructure and reduce the impact of wildfire on adjacent communities and private land would also have long-term moderate beneficial effects on adjacent areas by minimizing the potential for fire to spread from within the Reserve to outlying areas.

The fire management plan update would also allow the Reserve to develop preliminary responses to minimize the effects of fire damage to sensitive resources, such as vegetation in areas with highly erodible soils. It is probable that the revised fire management plan would emphasize a suite of fire management strategies, including hazard fuel reduction and prescribed fire. This would allow greater flexibility for Reserve managers to conduct pre- and post-fire management actions, as well as an improved ability to manage wildfire when it occurs. In addition, the plan would identify where post-wildfire emergency stabilization/rehabilitation of erodible areas should occur, which would have short- and long-term beneficial effects by targeting the most vulnerable areas for initial post-fire management activity. The update to the fire management plan would also analyze existing strategies from the current fire management plan, including continued suppression of all wildfires.

Grazing: Livestock grazing would continue to occur over 11,000 acres (approximately 76%) of the Reserve, affecting the most palatable grasses and forbs for forage, including both native and nonnative species. There would be no proposed changes in livestock numbers or season of use in alternative A. Livestock trailing would also continue to occur. Because most trailing occurs on roads and lasts only a few days, the effect of cattle on vegetation during trailing would probably be less than in permitted grazing pastures.

If grazing allotments were vacated voluntarily, the allotment could be reallocated to remaining or adjoining permittees, with no increase in animal unit months (Reserve 1996a: p. 44). As a result, the same number of animal unit months would be located on a larger allotment, a long-term beneficial effect, probably resulting in fewer concentrated impacts on vegetation from cattle being spread out over a larger area, depending on where the most palatable forage occurs.

According to the comprehensive management plan, grazing has caused an increase in the density of woody plants, especially sagebrush, and expansion of sagebrush into new areas. This has resulted in the loss of native perennial herbaceous species and an increase in nonnative species resistant to livestock grazing, a long-term minor to moderate localized adverse effect (Reserve 1996a: p. 44). Grazing also results in the consumption and trampling of both native and nonnative plants. If overgrazing occurs, it would result in impacts on less palatable grasses and forbs and the expansion of disturbance-associated nonnative invasive species. Through repeated use, grazing tends to encourage nonnative species that are adapted to disturbance, resulting in a series of long-term minor to moderate adverse effects, coupled with beneficial effects where nonnative and/or nonnative invasive species are consumed. As called for by the comprehensive management plan, eliminating grazing near springs and in riparian areas would continue to improve long-term beneficial effects on riparian and wetland vegetation.

Where cattle occur in aspen groves, trampling and grazing would continue to affect aspen regeneration, a minor to moderate long-term adverse effect. Allowing livestock to graze the same plants continuously throughout the grazing season may also result in decreased plant vigor and recruitment. Livestock grazing also tends to decrease the incidence of species less tolerant of grazing impacts while increasing species more tolerant of grazing impacts. Livestock lingering in pastures after scheduled departure dates, entering pastures before or after scheduled dates, and/or entering when a

pasture is scheduled for rest may also contribute to less-than-desirable conditions. Impacts may include inadequate remaining vegetative cover, regeneration of woody species, and an increase in nonnative vegetation and bare ground. Overall grazing impacts would have widespread minor to moderate adverse effects on vegetation. Depending on the location of water and salt sources and gates within allotments, impacts could be spread out and/or localized in allotments.

Research Natural Area: Long-term beneficial effects would continue as a result of ongoing management of the 312-acre Research Natural Area, administered according to the following objectives (from NPS *Natural Resource Management Reference Manual* #77, 2004).

1. Preserve a wide range of undisturbed, representative areas that typify important forest, shrubland, grassland, alpine, wetland, and similar natural situations that have special or unique characteristics, or provide outstanding examples of geological, biological, or ecological processes of scientific interest and importance.
2. Preserve and maintain genetic diversity.
3. Protect against deleterious environmental disturbance.
4. Provide student and professional education.
5. Serve as a baseline area for measuring long-term ecological changes.
6. Serve as a control area for comparing results from manipulative research conducted elsewhere.

There are few nonnative invasive species in the Research Natural Area, which protects old-growth pinyon and limber pines that have been measured to be 310–410 years old. Modifying the existing grazing allotment on the western boundary of the Research Natural Area so that the allotment no longer overlaps with the Research Natural Area would result in

additional minor long-term beneficial effects on RNA vegetation. This could be achieved by working with the permittee to remove or relocate this seldom-used overlapping area. Long-term moderate beneficial effects on the Research Natural Area would continue from grazing exclusion and the encouragement of nonmanipulative research, education, and other activities that would not detract from its research values.

Zoning: Management criteria associated with the large Natural Zone would preserve natural processes in this area, a long-term moderate beneficial effect. Emphasis on the California Trail Zone in this alternative would also have long-term beneficial effects by preserving vegetation communities present at the time of the emigrant experience. The Historic Rural Setting Zone would continue to have minor to moderate adverse impacts on native vegetation by preserving the agricultural setting that existed at the time the Reserve was established. Adverse effects could include precluding natural succession from grazed/low-growing herbaceous areas to areas covered with shrubs and trees. Ongoing adverse effects related to human use would also continue to occur on private lands managed for other uses and contained within this zone. Because public use and development of roads, parking areas, and other visitor facilities would continue to comprise a small part of the Reserve, effects on vegetation would be limited, with negligible to moderate localized adverse effects, depending on the development.

Boundary: There would be no additional modifications to and therefore no effects from changes to the Reserve boundary.

Research: The Reserve would continue to encourage climate change research to better understand changes in ecosystems over time, such as through study of pack rat middens (which show what these species have brought to their nest over time) and other opportunities, a long-term indirect beneficial effect resulting from improved understanding of vegetation changes.

Smoky Mountain Campground expansion: There would be a variety of negligible to moderate adverse impacts on vegetation from new construction of a second campground loop as called for by the Reserve's comprehensive management plan and the *Castle Rocks State Park Master Plan*. This new campground loop could affect approximately 10 acres and would include development of approximately 62 additional sites, including tent and RV campsites (including picnic tables and fire grates or fire rings) and may include a social group camping area with designated parking, as well as a new restroom with potential for additional showers. Short- and long-term impacts would occur from construction of campsites; placement of impermeable surfaces such as roads, buildings, and walkways; and from long-term use, including damage to and use of vegetation in the campground area.

Visitor center: Grading for and construction of a new 9,500-square-foot visitor center (including an indoor amphitheater and parking) would affect approximately five acres. Long-term minor to moderate adverse effects would result from vegetation loss and the covering of some areas with parking, buildings, and walkways. Following construction, native plants would be seeded or planted in new facility landscaping to minimize the introduction and spread of nonnative invasive species, a negligible long-term beneficial effect.

IMPACTS COMMON TO ALTERNATIVES B-D

Zoning: Compared to alternative A, expansion of the Research Natural Area Zone would have long-term beneficial effects on research potentially in a less impacted setting than other areas of the Reserve. These opportunities would be greater in alternatives C and D compared to alternative B. As in alternative A, the remaining alternatives would have long-term beneficial effects from removing the overlapping portion of the grazing allotment and from limiting human use in the Research Natural Area Zone. Expansion of the Research Natural Area Zone would increase its manageability by aligning its boundaries with major terrain features (ridges

and drainages). The boundary refinement would also align the Graham Creek allotment with natural features, reducing the need for costly fencing and a built environment on the edge of the Research Natural Area Zone, a long-term beneficial effect.

Similarly, expansion of the Natural Zone in alternatives B–D would allow vegetation in this zone to be managed according to ecological principles, more than would occur in other zones. These beneficial impacts would encompass the largest area in alternative C, followed by D and then B.

Except for alternative D, there would be little difference in the alternatives regarding the management of the Visitor Facilities and Access Zone and Transition Zone. Because these would be much larger in alternative D, there would be a greater potential for more intensive or more extensive visitor use activities and development, although specific plans currently do not vary widely among the alternatives. In alternatives B and D, beneficial effects would also occur from realigning grazing, if possible, to minimize its occurrence in the Visitor Facilities and Access Zone.

Long-term beneficial effects and long-term negligible to minor adverse effects would also occur from managing the historic vegetation in the California Trail corridor and from managing the Historic Rural Setting Zone. Because specific plans have not been developed for the California Trail or Historic Rural Setting zones, however, it is difficult to state how vegetation would be treated differently in these areas (except that private uses on private lands would continue in all alternatives). The emphasis on vegetation in the California Trail Zone would be based on the landscape at the time of the emigrant experience, and management of the Historic Rural Setting Zone would be based on the landscape at the time the Reserve was established. Therefore, in both of these zones it is possible that vegetation could be managed for a more open landscape than would otherwise occur through natural succession to shrubs or trees. The use of fire, however, could also achieve this desired character, and if frequent would be likely to keep public lands in these

areas (as well as other areas in the Reserve) more open, thereby contributing to a mosaic of vegetation similar to what is now present.

Visitor Use and New Facilities

Visitor use: As in alternative A, there would continue to be negligible to minor or localized moderate adverse impacts on vegetation from visitor use activities, such as hiking, mountain biking, horseback riding, climbing, hunting, and camping. To minimize the number of dog depressions at climber staging areas, both an initial baseline condition assessment and regular monitoring would be conducted to establish better understanding of impacts and ways to minimize them.

Trails management plan/new trails: There would be a variety of short- and long-term minor to moderate adverse and beneficial effects on vegetation from development and implementation of a trails management plan. Short-term minor to moderate adverse impacts and long-term negligible to minor adverse impacts would also arise from constructing trail linkages to areas outside the Reserve, such as the Independence Lake area and/or Castle Rocks State Park. Adverse impacts would occur because of the loss of vegetation associated with trail development, while beneficial impacts could arise from closure and rehabilitation of trails and from minor improvements to trail routes to reduce impacts on resources. Actual effects would be evaluated as part of the trails management plan.

Equestrian staging area: Short-term minor to moderate adverse and long-term minor beneficial and adverse effects on vegetation would result from constructing and maintaining an equestrian staging area possibly near the Bread Loaves intersection or in another area. Approximately one to two acres of vegetation could be affected by the construction of a short (0.25-mile) loop road and a small parking area for horse trailers. Beneficial effects would occur from redirecting horse trailer parking along the shoulder of county and Reserve roads and therefore minimizing vegetation impacts on and/or encouraging natural revegetation of currently impacted areas.

Rim DCP implementation: A variety of beneficial and negligible to moderate localized adverse effects would occur from implementation of the Rim development concept plan. These would include ongoing vegetation impacts from conversion of approximately 9 campsites to day use, beneficial impacts on approximately 13 campsites that would be closed and rehabilitated, and construction impacts, including vegetation loss, from approximately 22 replacement campsites.

Logger Springs Road turnaround: Development of a turnaround at the north end of Logger Springs Road near the USFS boundary would result in long-term minor to moderate localized adverse effects on vegetation. Because this area has been previously disturbed, the magnitude of impacts from construction would be lessened.

Permitted Uses

Grazing: There would be no immediate changes in livestock numbers or season of use. Adverse and beneficial impacts would continue. As in alternative A, eliminating grazing near springs and in riparian areas would continue to have long-term beneficial effects on riparian and wetland vegetation. In addition, vegetation restoration efforts in the California Trail Zone would have long-term beneficial effects. The potential for eliminating grazing over time in the California Trail Zone (all alternatives) and the Visitor Facilities and Access Zone (alternatives B and D) would have long-term beneficial effects on features such as ruts and natural vegetation composition.

County road maintenance: As in alternative A, there would be ongoing negligible to minor adverse effects on vegetation from maintenance of the county road. Continuing to partner with Cassia County to maintain the road and promoting practices to improve maintenance, engineering, erosion, and dust control would probably also improve conformance of the road to NPS standards and would have long-term beneficial effects. Unlike alternative A, in alternatives B–D the National Park Service would consider opportunities for ownership or management of the county road through the Reserve. This could also improve road maintenance practices that contribute to NPS road standards and character.

Natural and Cultural Resources Management

As in alternative A, the Reserve would develop a vegetation management plan to define plant community characteristics and to identify and prioritize areas for restoration based on these characteristics. In addition, the invasive plant management plan (NPS 2011) would continue to be used to refine priority areas for the treatment of nonnative invasive plants. Treatments would be evaluated based on the management strategies in that plan.

Human impact monitoring: Human impacts—for example at climber staging areas, along social trails, and in campsites—would be systematically monitored to address user capacity issues. Where monitoring showed an increase in human impacts, additional management actions would be undertaken to reduce these. It is therefore likely that over time, monitoring would result in long-term minor to moderate beneficial impacts on Reserve resources, particularly vegetation. This would especially be related to reducing impacts such as social trails, campsite damage, dog depressions, and expansion of climber staging areas through restoration and/or visitor education.

Fire use: Actions would be the same as in alternative A, plus the Reserve would consider reintroducing the influence of fire by widening the array of management tools available for Reserve managers. One available tool could be fire use, a program which employs naturally occurring, lightning-caused fires to accomplish specific management objectives. After natural ignition, fires are allowed to occur in particular sites under specific conditions. Another tool could include prescribed fire. As in alternative A, human-caused fires would continue to be suppressed. Use of fire would allow the Reserve to return a natural fire regime to the City of Rocks landscape as a critical ecological component that would benefit fire-dependent species, including vegetation and wildlife, and contribute to soil formation and enrichment. The ability to manage fire for the benefit of the Reserve would be considered in the fire management plan.

ADDITIONAL IMPACTS FROM ALTERNATIVE B

Zoning: In addition to beneficial effects from eliminating grazing near springs and in riparian areas, additional long-term beneficial impacts would arise from eliminating grazing over time in the California Trail and Visitor Facilities and Access Zones and from potentially reducing the total number of animal unit months over time as attrition in grazing permittees occurred.

Visitor center/information: A variety of negligible to minor adverse effects would result from constructing information kiosks and signs throughout the Reserve to provide for additional self-guided visitor orientation and interpretation, such as at Bath Rock and at Smoky Mountain Campground. Although negligible adverse effects on vegetation could occur from remodeling the existing visitor center house (because of impacts from construction staging areas), these would be negligible compared to impacts that would result from the proposal in alternative A to construct a new 9,500-square-foot visitor center facility with parking, affecting approximately five acres.

Smoky Mountain Campground expansion: Smoky Mountain Campground is located in a sparsely vegetated pinyon-juniper woodland. As in alternative A, there would be a variety of negligible to moderate adverse impacts on vegetation from new construction of a second camping area. This campground expansion could include a social camping area and some tent sites. For example, construction would emphasize a social camping area (such as several campsite clusters in the same area), rather than focusing on formal campsites. As a result there could be fewer or greater vegetation impacts from construction, depending on how the site was configured.

Approximately 10 acres could be affected by development of an additional parking area, roads, tent pads, and restrooms or vault toilets, as well as showers if these could be accommodated without a new well or water tank. Constructing the campground would require road routing and grading, removing vegetation, and potential hardening of sites.

Smoky Mountain amphitheater: Long-term minor to moderate localized adverse effects on vegetation would occur from development of an amphitheater within Smoky Mountain Campground.

Research: In addition to protecting the Research Natural Area, the Reserve would expand climate change research in the Research Natural Area to better understand changes in ecosystems over time, a long-term beneficial effect. Studying vegetation changes is one example of climate change research that could be conducted in the Reserve.

Partnerships: Working with partners and neighbors could expedite and improve the process of connecting trails to adjacent lands. This could make it easier to design minimum-impact trails and reduce the effects associated with their construction, a long-term beneficial impact.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

Zoning: In addition to beneficial effects from eliminating grazing near springs and in riparian areas, additional long-term beneficial impacts would arise from potentially reducing the total number of animal unit months over time depending on whether grazing permittees took advantage of the grazing buyout program. More than doubling the size of the Research Natural Area Zone in alternative C (to approximately 693 acres) would include portions identified in alternative B as well as expand to protect a greater expanse of pinyon-juniper forest and habitat for the pinyon mouse and cliff chipmunk, a long-term beneficial effect.

In addition to beneficial impacts from managing California Trail vegetation based on cultural landscape inventory guidance, additional long-term beneficial impacts would result from a better understanding of California Trail vegetation both within and outside the Reserve. Identifying the extent of the pinyon pine forest and the factors that support it could also lead to long-term beneficial impacts.

Visitor center: As in alternative A, grading and construction of a new visitor center would have adverse impacts on vegetation. In alternative C, however, fewer impacts would result because of the facility's smaller size: it would be less than one-third the size of the facility proposed in alternative A and slightly more than half the size of the building proposed in alternative D. Construction of the approximately 2,600-square-foot visitor center could affect up to five acres, including the necessary area for the building, parking, and access. As in alternative A, there would also be negligible beneficial effects from native plant landscaping.

Smoky Mountain Campground expansion: As in alternatives A and B, a variety of impacts would occur to vegetation from new construction of a second, approximately 62-site campground loop.

Smoky Mountain Outdoor Learning Center: There would be a variety of short-term minor to moderate adverse impacts on vegetation from construction of an outdoor learning center (probably composed of approximately six to eight yurts and an outdoor amphitheater) at Smoky Mountain Campground. Long-term minor to moderate adverse impacts would occur from grading and construction, and long-term negligible to minor adverse impacts would arise from ongoing use.

Smoky Mountain summit trail: There would be short-term minor to moderate adverse impacts associated with construction of a trail (approximately two miles in length) to the summit of Smoky Mountain, combined with long-term negligible to minor adverse effects from its maintenance.

Natural and cultural resources management: The Reserve would develop a vegetation management plan to identify and prioritize areas for restoration based on its development, a minor to moderate long-term beneficial effect. Additional beneficial effects would occur from working with partners and neighbors to implement actions from the vegetation management plan and the invasive plant management plan, because these partnerships would probably allow the Reserve to undertake more actions than it could on its own.

Research: As in alternative B, the Reserve would expand climate change research. In this alternative, there would also be an expanded focus on education and on understanding landscape-scale ecosystem changes, including those related to climate change.

Boundary: Expansion of the boundary to the east would result in moderate beneficial effects where incompatible uses or development rights on private lands are acquired, and moderate beneficial effects by acquisition of IDPR Recreation and Public Purpose leased lands. Acquisition of these areas would have combined localized and widespread long-term beneficial effects that would enhance both management and operations in the Reserve by increasing protection for California Trail resources and other natural and cultural resources linked to the Reserve. Increased protection of natural and cultural resources would be fostered by the number and presence of staff monitoring resources and visitors in the field, natural and cultural resource stewardship planning, and a higher standard of resource protection (related to the NPS mission), with lower tolerance for adverse impacts and no resource extraction. Because it is likely that most lands within the proposed boundary expansion would retain their current use—including as campgrounds, open space, and historic remnants of the California Trail—if the identified areas were added to the Reserve there would be long-term beneficial effects on vegetation from protection of additional important natural, cultural, and recreational resources, combined with long-term minor to moderate adverse effects from additional development of currently leased BLM-managed lands at Smoky Mountain Campground, and for development of the proposed visitor center on current BLM-managed land.

Partnerships: As in alternative B, there would be long-term beneficial effects from working with partners to accomplish similar goals, such as trail connections.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

Zoning: As in alternative C, there would be long-term beneficial effects and long-term negligible to minor effects from managing historic vegetation associated with the California Trail corridor to reestablish a more historic setting. In addition, long-term beneficial effects would result from identifying the extent of the pinyon pine forest and factors that support its existence.

Visitor center: As in alternatives A and C, there would be short-term impacts from grading and construction of a new visitor center and long-term impacts from use of the new facility, coupled with negligible beneficial effects from native plant landscaping. As in alternative A, the new visitor center would include an indoor amphitheater. Similar to alternative C, the visitor center would be smaller: at about 4,900 square feet, it would be approximately half the size of the proposed building in alternative A. Therefore, there would probably be fewer impacts on vegetation associated with its construction than in alternative A.

Smoky Mountain Campground expansion: As in alternatives A–C, there would be a variety of impacts on vegetation from new construction of a second, approximately 62-site campground loop. With the focus on additional smaller tent sites in this alternative, it is likely that there would be fewer impacts, depending on how the sites were configured.

Logger Springs turnaround: Long-term minor to moderate localized adverse effects from development of a turnaround at the north end of Logger Springs Road would be the same as in alternatives B and C, except that under alternative D, parking would be formalized. Although this could affect more vegetation, it is likely that there would be fewer impacts over time because parking would be confined to a designated area, rather than along the edges of the turnaround and on Logger Springs Road.

Boundary: Beneficial impacts associated with boundary expansion would be the same as in alternative C.

Research: Actions and impacts would be the same as described in alternative C.

Partnerships: As in alternatives B and C, there would be long-term beneficial effects from working with partners to accomplish similar goals.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

General measures to minimize impacts on vegetation (as appropriate to the alternative) would include the following:

- Identify and delineate construction limits to prevent expansion of construction operations into undisturbed areas.
- Minimize construction limits and areas to be cleared where possible.
- Salvage plant material prior to construction from areas to be disturbed.
- Restore staging and other temporarily impacted areas following construction.
- Align trails to climbing routes and continue to take into consideration climbing route access to minimize the development of social trails.
- Continue to develop and contain staging areas for climbers to limit spillover impacts into adjacent undisturbed areas.
- Conduct a baseline study of social trails and user-created trails.
- Continue to place barriers in front of social trails at campsites, day-use areas, and other necessary locations to restore area natural resources.
- Increase education about staying on trails if monitoring standards are exceeded for social trails.
- Take appropriate preventative measures, such as increasing signage about trails, creating natural barriers and erosion control measures, brushing out areas, closing off areas if needed, and formalizing trails to minimize impacts from social trails.
- Comply with resource restrictions in the BLM *Cassia Resource Management Plan* regarding work on state-leased lands, including construction periods that avoid impacts on native species such as Swainson's and ferruginous hawks.

Mitigation measures for preventing the spread of noxious weeds include the following:

- Import only freshly exposed subsurface materials when materials are imported from outside the Reserve.
- Wash all vehicles prior to commencing construction projects.
- Cover stored soil and rock, as appropriate, to prevent exposure to noxious weed seed.
- Separate salvaged weed-contaminated soil from weed-free soil and use the contaminated soil for subsurface fill.
- Conduct annual monitoring for potential weed infestation using early detection/rapid response eradication techniques.
- Identify and control nonnative plant species infestations prior to construction

Measures that could be used to minimize the number of dog depressions at climber staging areas include the following:

- Increase dog owner education.
- Redesign fences at staging areas.
- Determine whether a permit should be required to bring dogs to the Reserve.
- Restrict dogs at climber staging areas.
- Restore impacted sites.
- Measures that would be used to minimize impacts from grazing and livestock trailing include the following:
 - Meet the physiological needs of plants through manipulation of grazing by: 1) delaying initial grazing until range readiness, 2) allowing adequate leaf area to remain after a grazing period, 3) allowing adequate time between grazing periods to permit replenishment of leaf area and vigor, and 4) allowing adequate leaf area and time late in the growing season for replenishment of vigor and bud development (Reserve 2008b).
- Periodically rest grazing areas, allowing plants to reproduce, either through seed production or vegetatively (Reserve 1996b: p.15).

- Rely on deferred rotation and rest-rotation. ("Deferred rotation grazing is the systematic rotation among two or more pastures with a delay in grazing on an area for an adequate period of time to provide for plant reproduction, establishment of new plants or restoration of vigor." Society for Range Management 1989 in Reserve 2008a: p. 6). Rest-rotation grazing is the systematic restriction of grazing, rotated between pastures, for a complete growing season (Reserve 2008a: p. 6).
- Where allotments have only one pasture (Trail Canyon and Tracy Lane), use delayed turnout (until range readiness), salting, herding, and improved water distribution to obtain uniform distribution of cattle in the allotment, then remove cattle when the desired degree of utilization is obtained (Reserve 2008a: p. 7).
- Restore degraded grazing areas toward a condition of native perennial grasses and widely dispersed sagebrush using fire and vegetation management.
- Place salt at least 100 yards from any water source and move as necessary to avoid unacceptable damage to a given area.
- Encourage permittees to lessen impacts on riparian zones and areas of concentrated recreational use.

CUMULATIVE IMPACTS

Although the Reserve landscape appears to be somewhat natural, decades of use by people have left impacts in the form of trails, homesteads, farm fields, agricultural uses, and other development. As noted in the comprehensive management plan, the natural biological diversity and riparian and wetland habitats of the Reserve have been substantially altered by road and facility development, domestic livestock grazing, fire suppression, dryland farming, seeding, and brush control. These activities have resulted in widespread invasion by nonnative species, soil erosion, and altered plant and wildlife communities (Reserve 1996b: p. 131).

Historically, the landscape in the Reserve contained a mosaic of native grasses, such as Idaho fescue, and scattered sagebrush. Only fragments of the native vegetation mosaic have survived decades of grazing livestock and agricultural operations such as grubbing, plowing, and crop production. In addition, deliberate seeding of crested wheatgrass (several species) by the Bureau of Land Management, U.S. Forest Service, and private landowners has also altered areas on public lands and private lands that later became part of the Reserve.

According to the 2008 draft grazing management plan:

Some of the lower elevation basins were most probably farmed by early settlers. The vegetation of these areas has few native grasses remaining. Most of the lower elevation rangelands were cleared of brush at one time or another and seeded to introduced grasses. The primary species used was probably one of the wheatgrasses. Most of these areas are now dominated by big sagebrush with an understory of crested wheatgrass. On those areas that were not farmed the understory generally has some native species as well as crested wheatgrass (Reserve 2008a: p. 5).

... The four lower elevation basins have had a long history of rangeland seeding on them . . . Many of the areas within these basins were

undoubtedly former agricultural fields of barley, oats and other crops that were grown by the original homesteaders. The vegetation of these areas has few native species present in the community. Typically, these areas are dominated by big sagebrush with an understory of crested wheatgrass. Few other native species have reinvaded the sites. Other seedings such as some in the Twin Sisters Basin have many more native species in the understory. It is assumed that these areas were never farmed and the natives persisted through the early livestock use and seeding projects (Reserve 2008a, Appendix A: p. 49).

Aerial photos from the mid-1950s actually show that the Twin Sisters Basin was tilled and farmed. Past actions have also included uncontrolled livestock use which, according to the 1996 grazing management plan, continued to occur on lands formerly administered by the Bureau of Land Management until passage of the Taylor Grazing Act in 1934. "This uncontrolled use resulted in a substantial alteration of the native vegetation. The native perennial grasses decreased in abundance and productivity, allowing sagebrush and juniper to increase. While overgrazing by livestock in the late 1800s to early 1900s contributed to the increase in brush, other factors such as control of fires, greater seed dispersal, and an overall climatic shift also contributed to the change" (Reserve 1996b: p. 3).

Historical land management activities, livestock grazing, and fire suppression have probably reduced the natural fire frequency over the past 150 years, resulting in the dominance of woody species (Reserve 2008a: p. 5). As noted in the grazing management plan, the heavy fuel load provided by woody species probably contributed to the intensity and spread of wildfires in 1999 and 2000. Without some type of brush and tree control, future uncontrollable wildfires pose this threat to much of the Reserve. An accumulation of fine fuel (grasses) increases the chance of wildfire ignition (Reserve 2008a: p. 5). In these areas, livestock grazing can be a useful tool in reducing fine fuel and thus wildfire ignition and rate of spread (Reserve

2008a: p. 5). (However, fine fuels, which may be a consequence of grazing, also increase fire frequency. Proposed hazard fuel reduction and fire use in several of the alternatives may lead to more controllable fires.)

Today native vegetation has largely been converted to a dominant cover of sagebrush mixed with weedy grasses, nonnative thistles, and nonnative forbs. Among the species of nonnative grasses are crested wheatgrass (several species), cheatgrass, bulbous bluegrass, and Kentucky bluegrass. The loss of native perennial herbaceous species and a conversion to woody and nonnative invasive species has resulted in a moderate to major cumulative adverse effect, replacing native perennial herbaceous species with woody perennial native species and nonnative herbaceous species. On a smaller scale, as noted in the “Geology and Soils” section, recreational activities such as climbing have also contributed to a loss of vegetation. In the Bath Rock area, for example, the preliminary natural resources condition assessment identified numerous shade-holes dug by dogs, as well as areas where heavy foot traffic had trampled much of the vegetation between big sagebrush shrubs, leading to sagebrush mortality and loss of biotic crust in some locations. Additional recreational impacts from climbing include the extensive amount of equipment and gear associated with rock climbing, which, during staging for a climb, is usually placed in an orderly fashion on the ground around the immediate area, thereby impacting site vegetation, if present.

Present actions include ongoing minor to moderate cumulative adverse effects on vegetation from ongoing domestic livestock grazing, ground disturbance from development and human use, wildfire suppression, and potentially from climate change. These impacts include invasion by nonnative plants, which compete with native species; trampling disturbance and loss of native vegetation by livestock grazing; and continued effects from alteration of natural fire regimes. According to the preliminary natural resources condition assessment, the full potential impact of grazing

in Reserve allotments—or in portions of other allotments that fall within the Reserve—is difficult to assess because of the lack of monitoring data and information about the timing and level of forage utilization within allotments or portions of allotments (Erixson and Corrao 2011).

Dispersed camping outside the current Reserve boundary on other public lands in alternatives A and B would continue to result in direct and indirect impacts on vegetation, including additional nutrient deposition from human waste and the potential for poorly located stone fire rings. In alternatives C and D, these impacts could potentially be reduced under the proposed expansion of the Reserve boundary, which could subject these dispersed use areas to a range of different regulations, such as requiring permits for backcountry camping and providing vault toilets and designated sites and other amenities. If dispersed camping was removed from this location, however, it is likely that this displacement would result in the same level of impacts in a different location (elsewhere on nearby BLM-managed lands). As a result, there would probably continue to be moderate localized adverse impacts on vegetation from this activity.

Past, current, and future grazing on BLM and USFS allotments would be expected to have similar direct and indirect effects on vegetation as described above. For example, recent analysis by the University of Idaho for a preliminary natural resources condition assessment used the Rangeland Health Rapid Assessment Methodology to sample 13 sites in 9 allotments managed by the Reserve. Sampling consisted of 1 to 2 sites in each allotment. For each, the percent departure from the theoretical reference condition of three landscape attributes was measured. The three attributes were soil/site stability, hydrologic function, and integrity of the biotic community. The range of departure figures for soil/site condition varied from 0%–40%, for hydrologic function from 0%–35%, and for biotic community from 2.9%–37.5%. The average departure for soils was 20.98%, for hydrologic function

20.96%, and for biotic integrity 21.12%. These average departure figures fall into a “slight to moderate” departure category (20%–39%), while the overall range also includes a “none to slight” departure category (less than 20%) and a “moderate” departure category (40%–59%). Only one characteristic (soils) met this moderate measurement (Erixson and Corrao 2011: p. 81–86).

Future impacts on Reserve vegetation include the actions contained in the alternatives within this plan, coupled with the potential for minor to moderate cumulative adverse effects outside the Reserve from additional livestock grazing, agricultural land expansion, energy development, and expansion of human impacts associated with nearby towns and cities. A variety of upland vegetation types would be affected and actions would include conversion of these to development, including vegetation damage, loss, and invasion by nonnative species.

The Reserve is located within a biogeographic crossroads that produces a unique representation of plant and animal species, encompassing the northern extent of some species, while including the southern extent of others. As a result, these species may be very susceptible to a changing climate.

According to the draft National Climate Assessment, as warming continues, landscapes are changing rapidly and species, including many iconic species, may disappear from parks and regions where they have been prevalent. Continued lengthening of the growing season due to warming will shift the timing of seasonal life cycle events (phenology) in plants and animals, such as spring bud burst, emergence from overwintering, and the start of migrations, and this will probably lead to changes that adversely affect species and habitats (USGCRP 2013).

Climate change has been documented to increase the vulnerability of vegetation to fire, insect infestations, droughts, and disease outbreaks. Climate is intimately related to wildland fire and the length of the fire season. Fire severity and fire size are already increasing

across the western U.S. in response to ongoing climate change (USGCRP, 2013).

Threats to vegetation types and species composition noted in the preliminary natural resources condition assessment include overgrazing by livestock, wildfire, and changes in land use inside and outside of Reserve boundaries on private lands (Erixson and Corrao 2011). Undesirable invasive and weed species could dominate because of the loss of native vegetation. This native vegetation is also vital to the survival of species of concern such as sagebrush-obligate species. Grazing, browsing, and wildfire have caused additional threats to vegetation through loss of historic vegetation cover, which protects the soil surface from raindrop splash, sheet and wind erosion, and holds soil in place. Loss of historic vegetation cover can result in increased soil erosion, including rill and gully erosion, and the establishment of aggressive, undesirable nonnative species. If this continues, the resultant plant communities tend to transition toward a mixture of nonnative annual and perennial herbaceous vegetation with less habitat value for native species.

The preliminary natural resources condition assessment identified four nonnative invasive herbaceous vegetation types that dominate in 403 acres of the Reserve: these include crested wheatgrass, cheatgrass, bulbous bluegrass, and Kentucky bluegrass (Erixson and Corrao 2011). Cheatgrass and crested wheatgrass also provide the dominant understory cover for a large sagebrush-dominated mapping unit covering 708 acres. Nearly 10,000 acres were mapped as cultivated crops. Of this approximately 1,500 acres were mapped as pasture/hayfields, 1,500 acres as developed/open space, 25 acres as developed/low intensity, and slightly more than 7,600 acres as grassland/herbaceous (Erixson and Corrao 2011). Altogether, conversion of an unknown number of acres of native vegetation (perennial grasses, sagebrush, bitterbrush, pinyon, and juniper) to predominately nonnative species has occurred over time in the Reserve, leading to the above-described moderate to major cumulative adverse effects. Therefore,

when actions in alternatives A–D are added to the effects of other past, present, and future actions, overall there would continue to be moderate cumulative (including some major localized) adverse impacts on vegetation.

CONCLUSION

There would continue to be a range of negligible to moderate localized adverse effects from visitor use (alternatives A–D); minor to moderate localized adverse effects associated with construction of new facilities and trails (alternatives A–D); minor to moderate, including major localized adverse impacts from grazing (alternatives A–D) that could eventually be reduced in alternatives B and C; and minor to moderate beneficial and adverse effects from wildfire suppression, including from reduced spread of cheatgrass and from alteration of the fire regime (alternative A). Short- and long-term beneficial effects would result from changes in zoning (alternatives B–D), management of the Research Natural Area Zone boundary (alternatives B–D), human-impact monitoring (alternatives B–D), boundary expansion (alternatives C–D), fire use (alternatives B–D), and ongoing management of grazing allotments (all alternatives). Beneficial impacts would be greatest in alternative C from boundary expansion and from establishing larger Natural and Research Natural Area Zones.

BIOLOGICAL RESOURCES: WILDLIFE

a. Wildlife Methodology

Context of impact: Wildlife impacts were considered within City of Rocks National Reserve, on IDPR-leased land and IDPR-owned land and within the region.

Type of impact: Beneficial impacts would sustain wildlife populations or avoid disturbance of wildlife and wildlife habitats, while adverse impacts would reduce wildlife populations or cause loss or removal of habitat and disturbance to wildlife.

Impact Intensity

Negligible	Impacts would not be measurable or perceptible.
Minor	Impacts would be measurable or perceptible and would be localized within a relatively small area; however, the overall viability of wildlife would not be affected. Without further impacts wildlife populations or species would recover.
Moderate	Impacts would be sufficient to cause a change in the abundance, distribution, quantity, or quality of wildlife or wildlife habitat; however the impact would remain localized. The change would be measurable and perceptible.
Major	Impacts would be substantial and highly noticeable and could cause widespread changes in species or populations.

b. Wildlife Impacts

ALTERNATIVE A IMPACTS

Visitor and Administrative Use: There would continue to be negligible to moderate localized adverse effects on wildlife from recreational use and administrative activities within the Reserve. These impacts would be from noise and disturbance as well as from habitat modification related to providing for visitor uses such as hiking, climbing, and camping. Most mammals would tend to avoid habitually noisy areas, such as roadways, campgrounds, trails, and construction areas during the day. Because noise and disturbance would occur primarily at predictable times (during the day and into the early night hours in campgrounds, during the day on roadways, and for a few days to a few months in construction sites), there would be other times when wildlife could return to or pass through these areas without disturbance (such as late at night and during periods of low use when noise and activity would be reduced or absent). The intensity of visitor use activities would probably also continue to affect wildlife. For instance, the speed of mountain bikes and the presence of horses and riders on trails could startle or disrupt wildlife.

The climbing management plan notes that climbers and cliff-dwelling birds use some of the same vertical space, and as a result climbing may specifically affect swallows, raptors, and other similar birds, as well as mammals such as bats. The behavior of cliff-nesting birds has been shown to be affected by human presence when climbing occurs in proximity to nest sites or when it is of long duration. Behaviors such as temporary displacement from nest sites and territorial displays have been observed within the Reserve in response to human presence (Reserve 1998a). As a result, the Reserve would continue to take measures to protect nesting birds from disturbance. These measures would include delayed opening or seasonal closure of some areas.

Mammals such as bobcats, ring-tailed cats, bats, and kit foxes can also be disturbed by climbing activities because of their more frequent use of rocky habitats. Most of this use, however, occurs at night when these areas are often free of human disturbance; therefore most effects on these species would be negligible to minor.

Habitat modification, such as from mowing, trimming vegetation along trails, fixing fences, and other activities, would continue to occur as recreational facilities were maintained or modified to accommodate use. To the extent that these activities occurred during spring and/or in early morning or evening hours they would be more likely to disrupt wildlife but would continue to have limited effects.

Administrative operations such as maintenance, visitor center operations, and employee housing would also continue to cause noise and disturbance of wildlife, a long-term localized adverse effect that would continue to cause wildlife to avoid the area during the day (birds, deer, and other habituated animals would be an exception). Ongoing impacts from use of roads and other Reserve facilities would continue to cause occasional (in the case of birds and mammals) to routine (in the case of insects) mortality of a variety of wildlife.

Trails: There would be short- and long-term minor to moderate adverse impacts on wildlife from use, maintenance, and construction of trails. Developing a trails management plan could result in beneficial effects from the closure or modification of trails that adversely affect wildlife habitat, such as those through or near wetlands. Negligible beneficial effects would continue to occur from occasional wildlife use of trails.

Permitted Uses

Hunting and Trapping: There would continue to be negligible to moderate localized direct and indirect impacts on wildlife from permitted hunting and trapping within the Reserve and on private lands where prior permission from the landowner has been obtained. Impacts would occur to individuals but could extend to populations if higher permit numbers than could be supported were issued or if more animals than anticipated were taken. A wide variety of species would continue to be hunted and/or trapped, including deer, elk, moose, bobcat, mountain lion, coyote, rabbit, grouse, and quail.

Grazing: A variety of negligible to moderate adverse impacts would continue to occur due to disruption of wildlife movement and behavior from livestock grazing and habitat modification. If existing allotment permits on private and public land persisted, cattle would continue to graze on forage that would otherwise have been available to certain wildlife, such as voles and mule deer. Because grazing allotments are grazed to retain forage, however, it is likely that other wildlife would be able to access the remainder. At the same time, pressure on this vegetation from trampling and foraging would cause repeated disturbance, which could result in changing the vegetation community to a lower successional state (such as grassland rather than shrubland) or lower quality habitat. Although some wildlife would be attracted to livestock, others could feel threatened, while still others would not be bothered by cattle but could be threatened by herding dogs or riders on horseback, such as during trailing operations. Under the current grazing system livestock may also directly affect ground-nesting birds such as northern harriers and killdeer, as well as

marmots and badgers, by occasionally disturbing or trampling habitats such as nests and burrows. This effect would probably occur infrequently because of the low to moderate density of these species.

Continuing to fence out wetlands and riparian areas and/or modifying grazing usage in allotments with these features would decrease the number of cattle in these areas and could increase natural wetland functions and move these communities toward healthy conditions by eliminating impacts on soils and vegetation and minimizing impacts on water and other aquatic organisms. The presence of cattle in the Reserve may also contaminate streams and springs with fecal coliform and contribute to soil erosion, resulting in contamination or sedimentation of downstream water resources during stormwater runoff. Unnaturally high sediment loads and turbidity associated with runoff could adversely affect aquatic organisms both in and outside of the Reserve, far downstream from the source of the particulates (Reserve 1996a: p. 111).

Natural and Cultural Resources Management

Night sky: There would be long-term negligible to minor beneficial effects from reducing reflective light within the Reserve and from undertaking an inventory of night sky quality and characteristics, a better understanding of which could help to maintain or improve nighttime wildlife habitat within the Reserve.

Inventory and monitoring: Wildlife inventory and monitoring would continue at current levels, focusing on personal observations of species as opportunities arise. Annual inventories of observed species and rare sightings would also continue to be documented, a long-term beneficial effect. However, because there would only be opportunistic (rather than systematic) studies of wildlife as funding or special initiatives become available, the Reserve would continue to have insufficient information about the array of species that inhabit the area, which could increase the potential for unintentional minor to moderate adverse effects. Future environmental impact analysis for proposed actions as more detailed plans are developed, however, would tend to decrease the potential for these unintentional effects to occur.

Fire management: Continuing the Reserve's current practice of full wildfire suppression could result in long-term changes in wildlife habitat as shrubs and trees encroach into grasslands and other habitats. Where grazing occurred, suppressing woody plant establishment, this impact could be reduced and therefore could benefit some wildlife by maintaining open areas. As with other management actions, there could be a range of beneficial and adverse effects, such as beneficial effects from not causing additional spread of cheatgrass due to fire suppression.

Invasive species: Long-term beneficial effects on wildlife habitat could occur from reducing the incidence of nonnative invasive species through treatment of priority areas identified by the invasive plant management plan and from indirectly from development of a vegetation management plan to identify priority areas for restoration (among other actions).

Management of natural areas: Ongoing management of natural areas, including the natural zone and the 312-acre Research Natural Area, for the purposes identified in the "Vegetation" section, would continue to have long-term beneficial effects on wildlife and wildlife habitat. There would also be beneficial effects from eliminating the overlapping portion of grazing allotment from the Research Natural Area and simplifying field management of the area.

Removal of Circle Creek impoundment (#1): While removal of the Circle Creek impoundment would restore natural conditions, there could be short-term negligible to minor adverse effects on wildlife that have become dependent on this area. These would be coupled with long-term beneficial impacts from restoration of riparian habitat in the same area.

Construction

The construction of new permanent facilities, such as the campground loop and the proposed visitor center, would result in long-term negligible to moderate localized adverse impacts on wildlife. Because these facilities would be constructed in areas that now comprise existing

habitat, and because they would remove some of that habitat, there would be long-term localized negligible to moderate adverse impacts not only from noise but also from habitat loss. This habitat loss would affect small mammals and other species with small home ranges more than large mammals because it is likely that larger species would pass through but not live in these areas. Some animals, such as birds, would also experience displacement to adjacent areas, where suitable habitat may also be found. Others, which are tolerant of human disturbance, may remain. Where actions affected key habitat areas, such as denning, roosting or nesting areas, there could be localized moderate adverse effects, including loss of some individuals, however these areas would be avoided to the degree practicable.

Construction of new facilities would also result in the installation of some additional temporary and/or permanent lighting near the Reserve. Because a variety of mitigation measures would be used, however, this lighting would have negligible to minor adverse effects.

IMPACTS COMMON TO ALTERNATIVES B–D

Impacts would be the same as in alternative A, except for those associated with construction of visitor facilities, natural and cultural resources management, boundary changes, and wildfire suppression.

Construction

Construction activities that would occur in alternatives B–D include improving drainage on roads and trails; modifications to Reserve campsites based on DCP recommendations; modifications to the existing visitor center at the Castle Rocks Administrative Unit (alternative B) or construction of a new visitor center (alternatives C and D); and construction of a new camping area/campground loop (alternatives B–D), amphitheater (alternatives B and C), and/or kiosks (alternative B) at Smoky Mountain. There would also be construction of a trail to the top of Smoky Mountain (alternatives C–D), construction of a multiuse trail to link California Trail

resources (alternatives B–D), construction of an equestrian staging area near the Bread Loaves intersection (alternatives B–D), and construction of a turnaround on Logger Springs Road (alternatives B–D). In alternative D, the turnaround would also contain a parking area.

Construction of these facilities would result in variable degrees of long-term wildlife habitat loss and variable degrees of noise and disturbance from use. Some would be day-use facilities and some would also include nighttime use. Whereas construction of campsites would retain vegetation suitable for campsite screening, construction of associated roadways and buildings or parking areas would remove large areas of vegetation. Because some of these facilities would be constructed in previously disturbed areas that have not yet recovered, and because they would also be constructed in common habitat types (previously disturbed grassland and sagebrush communities), there would probably be a range of negligible to moderate localized adverse and beneficial effects on wildlife.

Extending trail connections to areas outside the Reserve by developing partnerships with adjacent land managers and private landowners could result in trails that connect to USFS- and BLM-managed lands and Castle Rocks State Park. As in alternative A, these would have short- and long-term minor adverse and long-term negligible beneficial effects.

Natural and Cultural Resources Management

The Reserve could study the possibility of encouraging pronghorn and reintroducing extirpated species such as peregrine falcon and pygmy rabbit in cooperation with other agencies. Doing so would require additional information and environmental impact analysis but could enhance the Reserve's role as an important refuge for wildlife. Actions to reintroduce these species would have both long-term beneficial and potential adverse effects. Working with partners and the state to understand and protect wildlife resources would also have minor long-term beneficial effects.

Soundscape: Maintaining the Reserve soundscape within current levels, documenting these levels, and crafting a soundscape management plan would have long-term beneficial effects on wildlife. These management principles would result in recognition of potential soundscape impacts and identification of measures that would be taken to minimize these.

Night sky: In addition to beneficial effects from reducing reflective light within the Reserve and from inventorying night sky quality and characteristics as in alternative B, there would be additional direct beneficial effects from improving night sky characteristics and potential indirect benefits related to interpreting these, an indirect beneficial effect on wildlife from maintaining dark night sky characteristics.

Fire management: Compared to alternative A, the potential use of fire would lead to negligible to minor adverse effects from possible loss of individuals of some species. This would be combined with long-term beneficial effects on wildlife habitat resulting from the development of fuels treatment plans and the potential use of fire, which would reduce the incidence of catastrophic wildfire. Benefits would include an improved range of habitats (vegetation mosaic) from the juxtaposition of burned, partially burned, and unburned areas, and from the recycling of nutrients through the food chain.

Grazing: There are no proposed changes in livestock numbers or season of use. Adverse and beneficial impacts would continue.

Research Natural Area and research: Beneficial effects noted in alternative A would result from maintaining grazing where it currently occurs while removing an overlapping portion of a grazing allotment from the Research Natural Area. Expanding the Research Natural Area would increase available wildlife habitat for several Idaho Sensitive Species and expand general wildlife habitat protection in this area. In addition, there would be opportunities for paired vegetation studies that could also benefit wildlife. There would be long-term beneficial effects from removing a portion of a grazing allotment, from

maintaining minimal human use in the Research Natural Area, and from expanding the Research Natural Area to increase its manageability and protection of vegetation communities.

ADDITIONAL IMPACTS FROM ALTERNATIVE B

In addition to the impacts associated with alternatives B–D identified above, other actions in alternative B that could affect wildlife include improvements in wildlife inventory and monitoring, changes in grazing through attrition and zoning, and modifications to the boundary.

Inventory and monitoring: Actions planned under alternative B that would have long-term indirect beneficial effects on wildlife would include conducting a systematic wildlife inventory, developing and implementing a wildlife monitoring plan, and working with the Idaho Department of Fish and Game to prohibit hunting in the Research Natural Area and in high visitor use areas not excluded by state regulations. These actions would expand the ability of the Reserve to understand and manage wildlife, allowing for natural wildlife population variability and increasing knowledge of wildlife and wildlife habitat.

Additional trail: The development of a multiuse trail connecting to Tea Kettle Trail to link California Trail resources would have the same types of minor short- and long-term adverse and beneficial impacts as identified above for other trails projects.

Grazing: In alternative B, modifying or eliminating grazing where appropriate to improve the California Trail cultural landscape and to improve visitor access would have long-term minor beneficial impacts on wildlife habitat. This could include a reduction in disturbance-adapted species, such as species that are present because they are especially adapted to trampling and grazing. Potentially reducing grazing in the California Trail and Visitor Facilities and Access Zones, however, could have beneficial effects on wildlife during times of low visitor use. Because these periods would generally also coincide with an absence of grazing (such as October through

April), the degree of beneficial effects would probably be negligible to minor. The potential reduction of grazing over time, as permittees discontinue requests for permits due to changing business models or abandonments, could have long-term beneficial effects by reducing the number of livestock and animal unit months through attrition. Where grazing allotments were reconfigured to benefit vegetation and other resources, wildlife could also benefit.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

In addition to the impacts associated with alternatives B–D identified above, other actions in alternative C that could affect wildlife would include additional improvements in wildlife inventory and monitoring, potential restoration of California Trail vegetation, construction of an outdoor learning center and additional trails, changes in grazing management (zoning and the voluntary buyout program), boundary expansion, and some additional facilitation of research.

Inventory and monitoring: In addition to the expansion of inventory and monitoring for wildlife in alternative B, long-term beneficial effects would result from seeking partnerships with other agencies such as the U.S. Forest Service and Bureau of Land Management to better understand how wildlife use the Reserve and surrounding land. Addressing questions related to the status and trends of species composition for birds, mammals, and other relevant wildlife would improve Reserve understanding and protection of wildlife. Additional research topics, such as the status and trends of Idaho Sensitive Species, threatened and endangered species, and extirpated species could also indirectly benefit wildlife by determining which actions the Reserve should undertake to address the results of the research.

Historic vegetation restoration: The potential for restoration of California Trail vegetation could expand the mosaic of native wildlife habitat available to wildlife, a minor localized beneficial effect.

Outdoor learning center: As with other proposed construction projects, building a new outdoor learning center would have similar short- and long-term impacts on wildlife from noise, activity, and habitat modification. Although the visitor center would be smaller than in alternative A, the addition of the outdoor learning center and other facilities (including the equestrian staging area and turnaround) would probably result in the same degree of construction impacts. Use impacts, however, would be greater from the day-to-day activities in these facilities, especially on wildlife sensitive to disturbance.

Additional trail: The development of a trail to the summit of Smoky Mountain and an additional multiuse trail connecting to Tea Kettle Trail would have the same types of minor short- and long-term adverse and beneficial impacts as identified above for other trails projects.

Grazing: Potentially reducing grazing over time through permittees' voluntary participation in a grazing buyout program could have long-term beneficial effects from reducing the number of livestock and animal unit months, commensurate with the areas where it was eliminated. Where grazing allotments were reconfigured to benefit vegetation and other resources, wildlife could also benefit.

Boundary: Expanding the east boundary of the Reserve to protect viewsheds and portions of the California National Historic Trail, and to include Smoky Mountain Campground and the land currently leased to the state by the Bureau of Land Management, would also have long-term minor to moderate beneficial effects on wildlife. This would result from expanding protection for wildlife habitat, protecting portions of one of Idaho's northernmost pinyon-juniper forest ecosystems, and enabling the Reserve to manage increased recreational use and impacts, such as dispersed camping around Smoky Mountain Campground. Increased management of dispersed camping, for example, could reduce the threat of human-caused wildfires and benefit wildlife.

Research: The expanded Research Natural Area would allow for enhanced research opportunities on landscape-scale natural resource topics, including climate change. The expanded Research Natural Area would also provide additional flora and fauna species for research, including the opportunity for studies comparing two similar areas to compare and contrast species' adaptation to changing natural conditions. Combined, these could result in long-term minor beneficial effects by providing a better understanding of wildlife and wildlife habitat, which could therefore indirectly support wildlife protection.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

In addition to impacts associated with alternatives B–D identified above, other actions in alternative D that could affect wildlife would include differences in inventory and monitoring, construction actions, and grazing management. RNA actions and impacts would be the same as in alternative B, and the boundary expansion and impacts would be the same as in alternative C. Some differences in zoning of developed areas could also result in variable impacts. As in alternatives B and C, there would also be a multiuse trail to link California Trail resources.

Inventory and monitoring: Wildlife inventory and monitoring would be the same as in alternative A. As a result there could be unintentional minor to moderate localized adverse effects that could be decreased based on additional environmental impact analysis for specific projects.

Logger Springs parking area: Expansion of the Logger Springs turnaround would include construction of a designated parking area, increasing impacts on wildlife habitat in this area (minor to moderate and localized) for alternatives B–C (minor and localized).

Grazing: Because grazing permits would continue to be renewed in all zones (except the Research Natural Area Zone), unless there is permittee abandonment or consistent failure to comply with conditions of the permit, impacts would generally be the same as in alternative

A. An exception could be the slight benefits associated with removing pasturing of cattle from the Visitor Facilities and Access Zone, if possible (as in alternative B).

Zoning: Because the Transition and Visitor Facilities and Access Zones would be larger in this alternative, there could be more opportunities for later development of these, though no specific actions are currently planned that would cause this.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on wildlife (as appropriate to the alternative) would include the following:

- Conduct site-specific surveys for wildlife in proposed construction areas.
- Continue to monitor climbing routes to limit impacts on wildlife, such as nesting raptors, including enacting seasonal closures as necessary.
- Continue to prohibit artificial modification of rocks for climbing, such as the introduction of glued hand-holds or removal of jutting or sharp edges.
- Continue to require permits for use of portable electric drills to create bolted sport climbing routes.
- Use information gained from inventory and monitoring of wildlife to improve management.
- Avoid impacting key wildlife habitat sites, such as nesting or denning areas, from construction projects.
- Minimize the degree of habitat removal (vegetation clearing) by delineation of construction limits.
- Limit the effects of light and noise on wildlife habitat through controls on construction equipment and timing of activities, such as limiting construction to daylight hours to the extent practicable.
- Employ spill prevention measures to prevent inadvertent spills of fuel, oil, hydraulic fluid, antifreeze, and other toxic chemicals that could affect wildlife.

- Ensure that construction personnel at work sites do not provide human food to wildlife.
- Maintain proper food storage and dispose of all food waste promptly.
- Schedule construction activities with seasonal consideration of wildlife life cycles to minimize impacts during sensitive periods (for example, nesting).
- Employ, monitor, and maintain erosion control measures at construction sites to minimize sediment inputs to aquatic habitats.
- Engineer trails and trail stream crossings to facilitate aquatic organism passage and to maintain ecological connectivity.

CUMULATIVE IMPACTS

Similar to other protected areas, the combined effects of development in the Reserve and in the surrounding area over time, coupled with the purposeful eradication of predators through the mid-1900s, have contributed to low-level or extirpated populations of some key species. The region as a whole, however, contains most of its historic species, although in diminished numbers. Wolves, black bear, pygmy rabbits, pika, and peregrine falcons are among the species extirpated from the Reserve. Pronghorn, once considered extirpated, are occasionally seen within the Reserve and are frequently seen in the Raft River Valley. Pygmy rabbits have also been observed approximately 10 miles from the Reserve. Other species that have become very rare include moose, elk, and bighorn sheep. Bighorn sheep were reintroduced on BLM land near the Reserve in the Jim Sage Mountains, South Hills, and on the south slope of Cache Peak. Since then they occasionally pass through the Reserve, however sightings after the Cache Peak territory was abandoned have been rare. The population in the Jim Sage Mountains continues to do well and could provide a source for sightings. The Bureau of Land Management notes that moose, elk, and bighorn sheep are increasing outside the Reserve. Moose are present and often observed at Castle Rocks and elk are frequently seen at Chicken Springs and in the Cedar Hills south of the Reserve.

If climate warming continues as predicted by current trends, it is likely that some wildlife species could be displaced from their home ranges, resulting in long-term direct and/or indirect effects (for example, effects associated with predator-prey relationships). The extent to which this would occur is unknown but is likely to become more evident as effects are studied. Other impacts would be the same as identified in the vegetation section.

Past actions include development of roads and administrative and recreational facilities in the Reserve and surrounding area, combined with physical development of area towns and ranches and the establishment of agricultural and ranching activities, contributing a range of adverse cumulative effects. The presence of roads also routinely affects wildlife through collisions with vehicles, resulting in continuing loss.

Present actions include ongoing administration of recreational and visitor use facilities in the Reserve and surrounding areas, combined with use of these areas, which would continue to cause minor to moderate cumulative adverse effects from noise, activity, and wildlife habitat loss. Current and future grazing on BLM and USFS allotments would be expected to have similar direct and indirect effects on wildlife, as described in the impact analysis for the alternatives. Because grazing continues to affect springs and wetlands within the Reserve, it could be having unknown effects on species associated with these environments. For example, during a 2008 survey, several fairy shrimp were submitted for identification and were determined to be *Branchinecta constricta*, representing a significant range extension west of the Continental Divide from known populations in southern Wyoming (Erixson and Corrao 2011). This points to the need for additional study of Reserve aquatic organisms, including potential adverse and beneficial impacts as activities in these unique environments continue.

As noted in the preliminary draft natural resources condition assessment, current livestock use and grazing impacts are an important focus for planning restoration of

stream banks, because cattle typically congregate in dense vegetation, shade, and watering sites available along stream banks and in wetland areas (Erixson and Corrao 2011). A reduction in livestock access to the riparian areas and stream channels would substantially reduce erosion, stream turbidity, and undesirable shifting of plant species composition and habitat structure. If current grazing trends continue, they could result in diminished representation of wetland species and riparian zones in this semiarid climate (Starkey 2010), a moderate cumulative adverse effect.

There would also continue to be negligible to moderate adverse effects on wildlife from visitation to the Reserve (with an estimated 100,000 visitors per year trending upward). Impacts would primarily be related to disturbance from human activity. Visitor use activity diminishes dramatically in winter and rises in spring, tapering off in late summer and early or late fall, depending on snowfall. Comparatively, physical disturbance would remain low, with additional development concentrated outside the Reserve or in proposed boundary expansion areas with facilities.

Reasonably foreseeable development projects—including additional construction of visitor and administrative facilities under the alternatives in this GMP—would result in additional negligible to minor cumulative adverse effects on wildlife. If surrounding proposed development projects such as energy development, additional confined animal feeding operations, or other semi-industrial operations occurred, there could be localized moderate adverse cumulative impacts. Wind energy projects could cause short-term disturbance during construction and periodic disturbance through maintenance activities. Wind energy development or electric transmission line development would also increase collision risk to birds and would probably result in mortality. Actual impacts are uncertain because these projects have not been implemented. Ongoing impacts from existing development and hunting/trapping would continue. Because extensive public lands lie adjacent to the Reserve, the Reserve would also

continue to contribute to a larger protected area of mostly intact habitat, allowing for some wide-ranging species, such as mountain lions, elk, moose, bighorn sheep, and others to be occasionally seen in the Reserve. Beneficial cumulative impacts would occur from additional inventory and monitoring projects to better understand wildlife and wildlife habitat use in the Reserve and in surrounding areas, where partnerships allowed for this transference of knowledge, such as would be facilitated by the use of a cooperative management area in alternative C.

When actions in alternatives A–D are added to the effects of other past, present, and future actions, there would continue to be minor to moderate cumulative adverse effects on wildlife. Alternatives B–D would also contribute negligible to minor cumulative beneficial impacts. Localized impacts in these alternatives would not add appreciably to cumulative adverse effects.

CONCLUSION

Alternatives A–D would have a range of negligible to moderate localized adverse impacts on wildlife. Alternatives B–D would also have a range of negligible to moderate localized beneficial impacts on wildlife. Beneficial impacts would probably be greatest in alternative C, while adverse impacts would probably be greatest in alternative D.

BIOLOGICAL RESOURCES: SPECIAL STATUS SPECIES

a. Special Status Species Methodology

Context of impact: Special status species were considered within City of Rocks National Reserve and in the region.

Type of impact: Beneficial impacts would expand, improve, protect, or restore the range, location, number, or population of a species, while adverse effects would alter or diminish these.

Impact Intensity

NEPA	Section 7 (USFWS 1998)	
Negligible	No Effect	The project (or action) is located outside suitable habitat and there would be no disturbance or other direct or indirect impacts on the species. The action will not affect the listed species or its designated critical habitat.
Minor Moderate	May Affect, Not Likely to Adversely Affect	The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in "take (loss of species or habitat)." Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects or (2) expect discountable effects to occur.
Major	May Affect, Likely to Adversely Affect	The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial.

b. Special Status Species Impacts**ALTERNATIVE A–D IMPACTS**

There are no federally listed species known to occur in the Reserve. There are, however, a number of species of special concern that occur within or near the Reserve. These, along with potential effects, are listed in tables 43 and 44 below.

TABLE 43. SPECIAL STATUS PLANT SPECIES*				
Plants	State Status	Federal Status	Habitat Occurrence	Impact
Davis wavewing (<i>Cymopterus davisii</i>)	S3*		Easterly slope just north of Graham Peak (known only from the Albion Mountains)	May affect, not likely to adversely affect. There would continue to be no impacts under Alternative A. There would be no additional impacts on this species under Alternatives B–D.
Simpson's hedgehog cactus (<i>Pediocactus simpsonii</i>)	S3		Found at its northern extent in the Reserve, it occurs in rocky or sandy soils on a windswept slope. It is threatened by grazing, collectors, and disturbance. Locally abundant along the ridgeline west of Indian Grove and upward. Can also be found on nearly every elevated ridge in the Reserve, though not as abundant as on the ridgeline west of Indian Grove.	May affect, not likely to adversely affect. Existing impacts related to trampling from cattle using this grazing allotment would probably continue under all alternatives.
Kruckeberg's sword fern (<i>Polystichum kruckebergii</i>)	S2*		Found in cool, moist granite microhabitats. It grows in rock crevices and is threatened by trampling or removal by visitor activities, such as rock-climbing. Shaded rock clefts on south slope of the ridge between Circle and Graham Creeks. Also at Castle Rocks.	May affect, not likely to adversely affect. There would continue to be a potential for effects to this species associated with trampling or removal by climbers under all alternatives.
narrow-leaved Indian paintbrush (<i>Castilleja angustifolia</i>)		C	Found in shallow, rocky soils and reaches its northernmost extent in the Reserve. It is threatened by disturbance but is unpalatable as a forage species.	May affect, not likely to adversely affect. There would continue to be a potential for effects to this species associated with trampling under all alternatives.
Christ's paintbrush (<i>Castilleja christii</i>)		C	Cassia County USFWS list	No effect. Does not occur in Reserve.
Goose Creek milkvetch (<i>Astragalus anserrinus</i>)		C"	Cassia County USFWS list. The low-growing perennial plant is found only in the Goose Creek drainage of Cassia County, Idaho; Elko County, Nevada; and Box Elder County, Utah.	No effect. Does not occur in Reserve.

TABLE 44. SPECIAL STATUS WILDLIFE SPECIES*

Wildlife	State Status	Federal Status	Habitat Occurrence	Impact
Mammals				
gray wolf (<i>Canis lupus</i>)		Northern Rocky Mountain DPS Delisted except Wyoming	Preferred habitat is open tundra and forests. Reserve forests are too fragmented and small to sustain or contribute to expansion of gray wolf. Wolves have, however, been seen in Oakley and in Stone, near Snowville on the border between Idaho and Utah.	No effect. The U.S. Fish and Wildlife Service did not identify this species as present in the vicinity of the Reserve.
bighorn sheep (<i>Ovis canadensis</i>)	S1		Bighorn sheep were reintroduced on BLM land near the Reserve in the Jim Sage Mountains, South Hills, and on the south slope of Cache Peak. Later, they abandoned the Cache Peak area. Sightings within the Reserve are rare.	No effect. This species only occasionally occurs within the Reserve.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	SC	SC	Occurs within the Reserve (Reserve 1996a: p. 13).	May affect, not likely to adversely affect. More information is needed about roosting to determine whether there are potential impacts on it from climbing.
spotted bat (<i>Euderma maculatum</i>)	S3 G4		According to the Idaho State University Museum of Natural History, spotted bats have been collected in desert pinyon-juniper woodlands near sandstone cliffs or over streams and water holes in coniferous forests with rock cliffs nearby. Individuals roost in deep rock crevices of canyon and cliff walls. Confirmed in Reserve in 2003. Poor distribution in Idaho.	May affect, not likely to adversely affect. More information is needed about roosting to determine whether there are potential impacts on it from climbing.
pygmy rabbit (<i>Brachylagus idahoensis</i>)	S2	SC*++	Tiny one-pound rabbits are the only rabbit to dig their own burrows. Pygmy rabbits require dense sagebrush with deep soils. In winter, the rabbits tunnel through the snow. They depend on sagebrush for 99% of their winter diet. Sagebrush also provides them with critical cover from predators. Pygmy rabbits are the only arboreal rabbits, climbing sagebrush to eat its leaves. Columbia Basin Distinct Population Segment listed as Endangered. Confirmed within 10 miles of Reserve. May have occurred within the Reserve.	May affect, not likely to adversely affect. Not currently known in the Reserve, however, no specific surveys have been undertaken. Pygmy rabbits could be affected by cattle if burrows are accidentally crushed. This effect is not expected because cattle are not normally moving through dense sagebrush patches and because pygmy rabbits are currently not known in the Reserve.

TABLE 44. SPECIAL STATUS WILDLIFE SPECIES*

Wildlife	State Status	Federal Status	Habitat Occurrence	Impact
cliff chipmunk (<i>Tamias dorsalis</i>)	S1* G1*		Stripes indistinct or absent except for a dark center one. Found in rocky pinyon-juniper woodlands and lower elevations of pine forests. Also found in higher-elevation Douglas fir and Mexican pine. According to the Idaho State University Museum of Natural History, in Idaho it occurs only in pinyon-juniper stands in the south-central part of Idaho and primarily inhabits cliffs and rocky areas (ISU 2012). Common in the Reserve. On the edge of its habitat in Idaho.	No effect. RNA boundary expansion in alternative C would give additional protection to this species.
Great Basin (Columbian) ground squirrel (<i>Spermophilus mollis</i>)	S2 G5		Permanent, uncommon resident within the Reserve.	May affect, not likely to adversely affect. Although no specific actions are proposed that would affect habitat for this species, potential impacts from grazing would continue to occur in all alternatives. If impacts were found to be occurring, mitigation measures would be developed.
pinyon mouse (<i>Peromyscus truei</i>)	S2 G5		They are often found among rocks or on rocky slopes, in a wide variety of habitats, but usually in pinyon-juniper woodlands. They are also found in chaparral and desert scrub areas, limestone cliffs, redwood forests, and riparian woodlands. According to the Idaho State University Museum of Natural History, in Idaho it is found in rocky, desert terrain dominated by western juniper. They seem much more dependent on pinyon-juniper woodlands than any other similar species (ISU 2012).	No effect. RNA boundary expansion in alternative C would give additional protection to this species.
Birds				
greater sage-grouse (<i>Centrocercus urophasianus</i>)	S2 G4	C''	Three confirmed leks exist in adjacent Castle Rocks State Park.	May affect; not likely to adversely affect; however no specific surveys have been undertaken. Although no specific actions are proposed in sage-grouse habitat, potential impacts from grazing would continue to occur in all alternatives. If found, impacts would be mitigated.
yellow-billed cuckoo (<i>Coccyzus americanus</i>)		C	Cassia County USFWS list.	No effect.
American white pelican (<i>Pelecanus erythrorhynchos</i>)	S1B* G3		Migrates through Reserve.	No effect.

TABLE 44. SPECIAL STATUS WILDLIFE SPECIES*

Wildlife	State Status	Federal Status	Habitat Occurrence	Impact
black-crowned night heron (<i>Nycticorax nycticorax</i>)	S2B G5		Confirmed in 2009 in Almo Valley but not in Reserve.	No effect.
bald eagle (<i>Haliaeetus leucocephalus</i>)	S4*N* G4	SC	Migrates through Reserve.	No effect.
Swainson's hawk (<i>Buteo swainsoni</i>)	S3B G5	SC	Common in Reserve in summer; nests near Smoky Mountain (BLM, Ady and Courtney, pers. comm. 2012).	No effect.
ferruginous hawk (<i>Buteo regalis</i>)	S3B G4	SC	Rare visitor to Almo Valley; occurs within the Reserve (Reserve 1996a: p. 13); nests near Smoky Mountain (BLM, Ady and Courtney, pers. comm. 2012).	No effect.
merlin (<i>Falco columbarius</i>)	S2N G5		One Almo Valley record.	No effect.
peregrine falcon (<i>Falco peregrinus</i>)	S2B G4T3	SC	Documented in Reserve prior to 1995; no records since.	No effect; there are no known nests within the Reserve.
Sandhill crane (<i>Grus canadensis</i>)	S3B G5		Uncommon breeding in Castle Rocks and Almo Valley; one nest record in Reserve.	No effect.
long-billed curlew (<i>Numenius americanus</i>)	S2B G5	SC	Uncommon breeding in Almo Valley and east of Emigrant Canyon.	No effect.
Wilson's phalarope (<i>Phalaropus tricolor</i>)	S3B G5		Several records from Almo Valley.	No effect; Reserve does not contain the wetland habitat it prefers.
burrowing owl (<i>Athene cunicularia</i>)	S2B G4		Expected but unconfirmed in Reserve and Almo Valley.	May affect, not likely to adversely affect. Grazing may affect this and other ground-dwelling species. If impacts were found to be occurring, these would be mitigated.
short-eared owl (<i>Asio flammeus</i>)	S4 G5		Expected but unconfirmed in Reserve and Almo Valley.	Same as above.
Lewis's woodpecker (<i>Melanerpes lewis</i>)	S3B G4	SC	Observed and photographed in May 2008 in Almo Valley.	No effect.
willow flycatcher (<i>Empidonax traillii</i>)		SC	Riparian areas, willow preferred.	No effect.
olive-sided flycatcher (<i>Contopus cooperi</i>)		SC	Found in high-elevation forests, subalpine/lodgepole.	No effect.
loggerhead shrike (<i>Lanius ludovicianus</i>)		SC	Perches on fences, powerlines above sagebrush steppe, pastures.	No effect.
pinyon jay (<i>Gymnorhinus cyanocephalus</i>)	S1 G5	SC	Fairly common in hills between Almo Valley and the eastern edges of the Reserve, moves into Reserve in fall for pine-nut crop.	No effect.
juniper titmouse (<i>Baeolophus ridgwayi</i>)	S2 G5		Fairly common in Reserve and hills east of Castle Rocks.	No effect.

TABLE 44. SPECIAL STATUS WILDLIFE SPECIES*

Wildlife	State Status	Federal Status	Habitat Occurrence	Impact
sage thrasher (<i>Oreoscoptes montanus</i>)		SC	Found within sagebrush steppe.	No effect.
Virginia's warbler (<i>Oreothlypis virginiae</i>)	S1B G5		Fairly common in high woodlands in Castle Rocks and Reserve.	No effect.
Brewer's sparrow (<i>Spizella breweri</i>)	S3B G5		Fairly common in open areas of Reserve and Almo Valley.	No effect.
South Hills crossbill (<i>Loxia sinesciuris</i>)	S1 GNR		Genetic variation of Red Crossbill. Not found in the Reserve.	No effect.
Fish				
Yellowstone cutthroat trout (<i>Oncorhynchus clarki bouvieri</i>)	S2 G4T2	SC+	Yellowstone cutthroat trout have been observed in the Almo Creek watershed outside the Reserve; however, the current fish inventory within City of Rocks drainages is inadequate to determine their presence or absence. Recent observation suggests Yellowstone cutthroat are present in the upper reaches of Almo Creek but not in Circle or Graham creeks.	No effect; has not been identified in Reserve probably because Circle Creek and Graham Creek remain disconnected from Almo Creek and the Raft River most of the year.
Amphibians				
western toad (<i>Anaxyrus boreas</i>)			Found in suitable habitat within the Reserve.	May affect, not likely to adversely affect. Where their habitats are not fenced out of grazing allotments, western toads could be accidentally trampled by cattle and killed or injured.

Definitions*State of Idaho Rank**

S1 = Idaho State Critically Imperiled: Listed by the Idaho Conservation Data Center (ICDC) as at-high-risk because of extreme rarity (often 5 or fewer occurrences), rapidly declining numbers, or other factors that make it particularly vulnerable to rangewide extinction or extirpation.

S2 = Idaho State Imperiled: Listed by ICDC as at-risk because of restricted range, few populations (often 20 or fewer), rapidly declining numbers, or other factors that make it vulnerable to rangewide extinction or extirpation.

S3 = Idaho State Vulnerable: Listed by ICDC as at-moderate-risk because of restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors that make it vulnerable to rangewide extinction or extirpation.

S4 = Apparently Secure: uncommon but not rare; some cause for long-term concern because of declines or other factors.

B = Breeding.

N = Nonbreeding.

Global Rank

G1 = Critically imperiled because of extreme rarity or because of some factor of its biology, making it especially vulnerable to extinction (typically five or fewer occurrences).

G2 = Imperiled because of rarity or because of other factors, demonstrably making it vulnerable to extinction (typically 6–20 occurrences).

G3 = Vulnerable (typically 21–100 occurrences).

G4 = Not rare, and apparently secure, but with cause for long-term concern.

G5 = Demonstrably widespread, abundant, and secure.

NTMB = Neotropical Migratory Landbird. As defined by Saab and Groves (1992), these are bird species that breed in Idaho and winter in tropical America between the tropics of Cancer and Capricorn. In the atlas, state ranks for these species include the acronym "NTMB."

Federal Rank

E = Endangered.

T = Threatened.

C = Candidate for listing as threatened or endangered, or the U.S. Fish and Wildlife Service is conducting a status review for listing.

SC = Species of Conservation Concern. Often a species for which the USFWS has information indicating that a proposal to list it as threatened or endangered under the Endangered Species Act may be appropriate, but for which additional information on biological vulnerability and threat is needed to support the preparation of a proposed rule.

DL = Delisted.

+ = Listing found not warranted on February 21, 2006.

++ = Listing found not warranted on September 30, 2010. USFWS decision is being appealed.

" = Listing warranted but precluded by higher priorities.

In addition to those species listed above, several species at the furthest extent of their ranges would continue to exist within the Reserve and would generally be protected under alternative A. These species include Utah juniper, *Juniperus osteosperma* (northern edge); pinyon pine, *Pinus monophylla* (northern edge); lodgepole pine, *Pinus contorta* (southwestern edge); limber pine, *Pinus flexilis* (one of the isolated pockets of the western range); subalpine fir, *Abies lasiocarpa* (southwestern edge); and Douglas-fir, *Pseudotsuga menziesii* (western edge of Northern Rocky Mountains).

Although specific development actions under alternatives A–D could remove individual trees, and seedlings of these species could continue to be trampled when present in grazing allotments, overall efforts would continue to minimize the number of trees removed and to protect habitat in other areas of the Reserve. As a result, there would probably be short- and long-term minor adverse effects combined with long-term beneficial effects. Beneficial effects would be greater in alternatives C and D, where boundary expansion areas added habitat for these species. This would be especially true where additions to the Research Natural Area protected additional habitat for old-growth pinyon-juniper forest, such as under alternative

C. Boundary expansion in alternatives C and D would also probably protect additional habitat for these species.

Three sensitive plants that occur in the Reserve would be identified by site-specific surveys and avoided or salvaged and relocated prior to implementation of projects that occur in their habitats. These include Simpson's hedgehog cactus, narrow-leaved Indian paintbrush, and Kruckeberg's sword fern.

Allowing livestock to graze the same plants continuously throughout the grazing season may also result in decreased plant vigor and recruitment, which could indirectly have negligible to minor adverse effects on wildlife, including sage-grouse, by reducing the amount of cover and food available and reducing the overall quality of the habitat.

Cattle have been also been implicated as the cause of increased cowbird parasitism because cowbirds predominantly feed around cattle that occur in high concentrations. Cattle may also decrease vegetation in riparian areas that is necessary for nest concealment by host species, increasing their susceptibility to parasitism. Brown-headed cowbirds have been observed in riparian areas seeking hosts and breeding.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on special status species (as appropriate to the alternative) would include the following:

- Conduct additional environmental impact analysis prior to undertaking actions associated with development proposals in this plan.
- Conduct surveys to determine whether sensitive, rare, threatened, or endangered species occur—if evidence of these species is found, actions would be modified to avoid impacting species or known habitat.
- Continue to monitor climbing routes to limit impacts on wildlife, such as nesting raptors.

- Determine whether special-status plant species are present in the area during the planning process for proposed actions in this plan—if special-status species occur in area, botanists would develop site-specific mitigations to ensure no adverse effects would occur.
- Conduct additional consultation with the U.S. Fish and Wildlife Service if listed species are later found in proposed project areas.
- Defer grazing from the mountains by grazing lower elevations, which would probably promote the growth and persistence of native shrubs, grasses, and forbs needed by sage-grouse for seasonal food and concealment, especially during the nesting period. This would also be expected to improve habitat for other sensitive sagebrush-obligate species. This conservation measure is recommended in the Conservation Plan for the Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006: p. 4-61).
- Maintain residual herbaceous vegetation at the end of the grazing season, as expected through monitoring, and adhere to utilization standards to contribute to nesting and brood-rearing habitat during the coming nesting season. This conservation measure is recommended in the Conservation Plan for the Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006: p. 4-61).

CUMULATIVE IMPACTS

Over time a variety of direct and indirect cumulative adverse impacts have occurred to species now classified as rare, threatened, or endangered. These impacts have resulted primarily from human disturbance and development, leading to habitat alteration or loss. Adverse and beneficial impacts have also been associated with predator control, and unnaturally frequent wildfire. Other adverse impacts include habitat fragmentation, primarily from transportation corridors. Ongoing minor to moderate adverse impacts on special status species would continue to occur from activities

on adjacent public and private lands, with negligible effects contributed from Reserve operations and maintenance.

Cumulative effects would also include those actions identified in the general wildlife section, including projections associated with the impacts of climate change as identified in the “Draft National Climate Assessment.”

The alternatives in this plan would potentially contribute negligible to minor cumulative adverse effects from the removal of nonnative invasive species in and near sensitive species and their habitats, where approved in consultation with state and federal agencies. For plants, these potential adverse effects would be combined with long-term beneficial effects from restoration of habitats by the removal of competitive nonnative invasive species. For wildlife, improvements in native plant populations and cover would contribute to negligible cumulative beneficial effects for habitat. When these effects are combined with the impacts from past, present, and future actions likely to occur, including ongoing Reserve management, maintenance and visitor services activities, and proposed construction and rehabilitation of buildings and structures, the contribution to cumulative impacts would be negligible to minor.

As noted in the preliminary natural resources condition assessment, overgrazing is a contributing factor to the loss of sagebrush/steppe ecosystem diversity and the introduction of undesirable species (Erixson and Corrao 2011). The impacts of vegetation changes and land development are not fully understood in relation to sagebrush-obligate birds; however research has shown that changes in habitat can negatively impact sagebrush-obligate bird species. The habitat lost during wildfire immediately affects sagebrush-obligate species because of major changes in vegetation structure and species composition and could cause permanent shifts in population caused by decreased fire reoccurrence intervals and loss of mature sagebrush shrubs. The loss of sagebrush communities from fire tends to occur because of the lack of stump-sprouting by most

species of sagebrush, the slow maturation of sagebrush, and because of fire return intervals of 20 to 60 years. As a result, sagebrush often dies and does not return following fire. In some cases the sites are entirely invaded by nonnative species, particularly the annual, cheatgrass, which initially outcompetes much of the native vegetation and provides high quantities of the fine fuels that commonly encourage more frequent wildfires (Whisenant 1990).

Continued grazing of allotments within and outside the Reserve could directly affect greater sage-grouse, Brewer's sparrows, loggerhead shrikes, and other ground- and shrub-nesting birds by occasionally disturbing or trampling nests. Nest disturbance or trampling would be reduced, however, because some of these species, such as sage-grouse, shrikes, and sparrows, nest in shrubs that would be brushed, rather than trampled, by cattle. Sage-grouse also tend to nest in dense areas of mature sagebrush that cattle would naturally avoid.

When actions in the alternatives are added to past, present, and future actions, there would be negligible to minor contributions to cumulative effects from implementation of alternatives A–D.

CONCLUSION

There would be no effect on threatened or endangered species because none occur within the Reserve. Individual effects, where they can be projected, are identified in the above tables for other sensitive species.

There would be no long-term adverse impacts on threatened or endangered species as a result of implementation of the alternatives. Although sage-grouse habitat is declining rangewide, the Reserve would continue to be available to provide habitat for sage-grouse if they were later detected within it, and/or if they were later listed. Proposed wildlife inventory and monitoring activities in the alternatives would help to improve knowledge regarding special status species and could also direct future mitigation actions if needed.

Future site-specific environmental impact analysis would continue to occur as proposed project actions are developed. If plants or wildlife were later listed as threatened or endangered by the U.S. Fish and Wildlife Service, additional consultation would occur to mitigate or avoid impacts. Where practicable the preferred action would be to avoid impacts by changing project implementation.

IMPACTS ON CULTURAL RESOURCES

a. Cultural Resources Methodology

Context of impact: Archeological resources were considered within City of Rocks National Reserve.

Type of impact: Adverse impacts would include activities involving ground disturbance (including soil compaction) in the presence of an archeological site, or activities that would increase the potential for vandalism, illegal collecting of artifacts, or destruction of a site. Beneficial impacts on archeological resources can occur when patterns of visitor use or management actions are changed near archeological resources such that an ongoing impact is reduced or eliminated. Direct impacts can occur as a result of grading, trenching, or other activities that damage the structure of an archeological site. Indirect impacts can occur as a result of increasing visitor use activities or management actions near an archeological site, leading to effects such as artifact collection, accelerated soil compaction, and erosion.

Impact Intensity for Prehistoric and Historic Archeological Resources, Historic Structures and Cultural Landscapes, City of Rocks National Historic Landmark, California National Historic Trail

NEPA	SECTION 106	
Negligible to Minor	No Effect	A determination of no historic properties affected means that either there are no historic properties present or there are historic properties present in the area of potential effects (APE) but the undertaking will have no effect upon them (36 CFR 800.4(d)(1)).
Minor to Moderate	No Adverse Effect	A determination of no adverse effect means there is an effect, but the effect would not meet the criteria of an adverse effect (36 CFR Part 800.5(a) (1)), i.e., diminish the characteristics of the cultural resource that qualify it for inclusion in the national register (36 CFR 800.5(b)). The undertaking is modified or conditions are imposed to avoid or minimize adverse effects. This category of effects may have effects that are considered beneficial under the National Environmental Policy Act, such as restoration, stabilization, rehabilitation, and preservation projects.
Major	Adverse Effect	An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register of Historic Places, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance) of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in distance or be cumulative (36 CFR 800.5(a) (1)). An adverse effect may be resolved in accordance with the 2008 programmatic agreement, or by developing a memorandum of or programmatic agreement in consultation with the state historic preservation office, Advisory Council on Historic Preservation, American Indian tribes, other consulting parties, and the public to avoid, minimize, or mitigate the adverse effects (36 CFR Part 800.6(a)).

CULTURAL RESOURCES: PREHISTORIC AND HISTORIC ARCHEOLOGY

a. Prehistoric and Historic Archeology Methodology

See “Cultural Resources” section above.

b. Impacts on Prehistoric and Historic Archeology

ALTERNATIVE A IMPACTS

Negligible to minor adverse effects could continue to occur from visitor use, including continued mountain biking, hiking, equestrian use, and climbing, where these activities occur in or near unknown archeological sites. Visitor use impacts can also include unintentional disturbance and/or vandalism to archeological resources, as well as use of sites (causing wear and tear). Although some of the more than 73 documented archeological sites in the Reserve have been previously damaged by vandalism,

grazing, and development (generally prior to protection within the Reserve), ongoing management actions would avoid continued effects of Reserve use, including recreational and management activities on archeological resources. Because cultural resources are nonrenewable, when impacts are detected, actions would be taken to avoid further disturbance to the extent possible through improving visitor knowledge and understanding of the presence of such resources using interpretation and education.

Ongoing negligible to minor adverse impacts could also continue to occur from permitted uses such as livestock grazing. In the past, grazing has affected previously unknown sites, and continued trampling could result in additional discovery of isolated artifacts or sites, a long-term beneficial and minor to moderate adverse effect. These effects have the potential to continue to occur on both public and private land within the Reserve.

Impacts associated with the use and establishment of sport climbing routes would continue to be avoided through systematic analysis of resources when new routes are proposed and through ongoing surveys of previously established routes. As noted earlier, when new sport climbing routes are proposed, these undergo a site analysis that involves investigation of the proposed access trail and staging area, the skill level required for the climb (which serves as a potential measure of expected use because easier climbs generally receive more consistent use), the rock face, evidence of wildlife use, and a survey for archeological resources. In addition the proposed routes must also meet other criteria established by the Reserve for climbing routes. Similarly, rehabilitation actions to reduce staging area impacts for sport climbing routes undergo archeological investigations and other analysis prior to proposed actions.

Ongoing impacts from implementation of the invasive plant management plan would continue to have negligible to minor adverse impacts (under section 106, no adverse effect) on archeological resources. Ground disturbance would continue to be required for several types of invasive plant management treatments and avoidance of known archeological sites would continue, as would mitigation measures prior to ground disturbance that would help to avoid impacts. The opportunity to continue to select from a variety of treatment methods that would have the least possible effect would allow for fewer impacts on resources. As a result, specific actions in proposed areas would be subject to additional environmental impact analysis, including surveys if necessary to ensure that there would be no or negligible effects.

Because there would be greater potential for catastrophic fires in alternative A, there is greater potential for loss or damage to archeological resources. Unplanned fires would probably burn hotter because of the Reserve's full suppression policy, which has been in place for many years. Fires could also increase the potential for finding surficial archeological resources now covered by vegetation, a potential long-term beneficial effect.

The ASMIS database would continue to be used to provide periodic measures of the physical condition and cultural/historical integrity of resources (maintaining the character, material, and stability of the cultural resource as acquired, excavated, or existing). Management efforts would continue to be focused on maintaining the integrity and condition of all sites to at least a standard of "good" condition on the ASMIS scale. For instance, a condition assessment of known sites would be undertaken to further monitor these sites.

Under alternative A, because no parkwide systematic archeological survey has been conducted, additional surveys would continue to be necessary as projects are proposed. It is very likely that the number of known sites would increase as a result. In addition, the Reserve would continue to conduct systematic surveys when the opportunity arises (such as the systematic survey conducted by Utah State University in summer 2012 and Section 106 surveys as needed for projects). Therefore, there would probably be both negligible beneficial impacts and the potential for short- and long-term negligible to minor adverse impacts associated with additional development.

Proposed projects in alternative A include construction of another campground loop at Smoky Mountain (affecting approximately 10 acres), and construction of a new visitor facility on BLM R&PP-leased land (approximately 5 acres). As part of their additional environmental impact analysis process, these proposed development projects undertaken by the Reserve would survey for and avoid impacts on known archeological sites to the extent possible. Because there is potential to affect unknown subsurface sites, additional mitigation measures outlined below would be used to relocate proposed work to avoid impacts (if possible) and/or to find out as much information as possible from the site (if avoiding impacts is not possible). As noted below, these actions would be undertaken by the Reserve archeologist, in consultation with the state historic preservation office and other experts as needed and in close coordination with the BLM Burley Field Office archeologist. Where sites are known, Reserve

staff would continue to follow protocols in condition assessments to monitor sites and avoid further impacts on them.

There would continue to be long-term beneficial impacts on archeology from preserving the California Trail and associated resources. Additional beneficial effects could occur if the NHL designation is updated to include other sections of the California Trail that are currently outside the NHL boundary (see “Figure 4. Designations”). Long-term beneficial impacts would also continue from retaining most areas of the Reserve in an undeveloped state, including the Research Natural Area. Continuing to conduct research and resource management projects, including inventory and monitoring of archeological resources and projects that survey for and document resources, would have moderate long-term beneficial impacts from increasing knowledge and understanding of, and therefore protection for, archeological resources. Nonnative invasive plant removal would continue to result in no or negligible effects based on mitigation techniques. Future restoration of treated sites could result in ground disturbance from scarifying, seeding, and/or planting, however these sites would be surveyed prior to taking action and monitored as restoration was implemented.

ALTERNATIVE B IMPACTS

Impacts would be similar to alternative A, with both short- and long-term negligible to minor adverse and negligible beneficial impacts from potential construction projects and long-term beneficial impacts from better understanding of Reserve resources. Negligible to minor impacts associated with continuing visitor use activities and permitted activities such as grazing would also continue. If the total number of grazing areas and cattle decreased through attrition, there would be short-term adverse and long-term beneficial impacts associated with additional removal of nonhistoric fences from grazing allotments.

Additional adverse and beneficial impacts that would be different in alternative B are described below.

The potential for additional short- and long-term negligible to minor adverse impacts could occur from a variety of construction projects with a potential for ground disturbance, such as the new equestrian staging area near the Bread Loaves intersection or in another area, expansion of the visitor center in Almo, restoration of the Circle Creek impoundment, reconfiguration of Reserve campsites, construction of a turnaround on Logger Springs Road; and construction of new trails or improving connections within or outside the Reserve. Possible trail connections might include Independence Lake, Castle Rocks State Park, and/or trails within the Reserve, such as a trail that would connect inscription rocks along the California Trail corridor, which would be described in the proposed new trails management plan.

There would be long-term beneficial effects from developing an archeological management plan to manage California Trail resources, including ruts, inscriptions, and rope grooves. Although development of plans (vegetation management plan, climbing management plan, fire management plan, and grazing management plan) would not impact archeological resources, recommendations or implementation associated with these plans could affect archeological resources if new areas of disturbance result. However these areas would be surveyed prior to taking actions that could affect unknown resources. Overall there could be long-term beneficial impacts, because mitigation actions would increase archeological surveys in new areas and implementation actions would avoid resources, if found.

There would be additional long-term beneficial impacts from working in partnership with the landowner to undertake archeological investigations to locate the historic Kelton-Boise stage station site and from actions to protect, stabilize, and preserve land-use activities and features associated with mining, homesteading, and ranching, such as the Nicholson Ranch

and the Moon Homestead site (if acquired). There are also opportunities to interpret other homesteads on public land within the Reserve. Other beneficial impacts would result from interpreting sites associated with these activities and undertaking more archeological research projects to identify, document, and preserve resources.

As in alternative A, long-term beneficial impacts would arise from investigation of Reserve archeological resources, and information learned from them would enhance interpretation and understanding of the likelihood of finding other potential sites. In addition, beneficial effects in alternative B would occur from increasing interpretation associated with archeological resources through waysides and other media.

Similar to alternative A, beneficial impacts would occur from additional protection of portions of the Reserve, including the Research Natural Area.

There would be long-term potential for negligible to moderate adverse impacts from the potential use of wildfire to manage Reserve vegetation communities. Other actions to manage the effects of fire, such as hazard fuel reduction, would have negligible to minor adverse impacts based on use of mitigation measures identified below. Development of a post-fire contingency plan to minimize erosion of granitic soils would have long-term beneficial impacts by keeping soils in place, thereby minimizing potential exposure of sites. Similarly, working with Cassia County to improve road drainage could minimize the amount of erosion near roadways, also reducing the potential for impacts following fires.

The effects of fire on archeological resources would vary. In general, sites with buried deposits or features tend not to be impacted by most low-intensity fires because of the ability of soil to insulate buried artifacts against extreme heat. In heavy continuous fuels, temperatures at the soil surface may be sufficient to damage stone or ceramic resources by scorching, fracturing, charring, and spalling. Temperatures of 500°C–600°C would begin to affect stone materials. Temperatures diminish rapidly with soil depth: when surface temperatures are 500°C, the temperature at a depth of 5 cm would be only about 200°C. With light- to moderate-severity fires, residence (burning) time is usually short and the downward heat pulse is low (NPS 2005c). Most fires cause only shallow soil heating even when surface temperatures are intense; however fires of moderate severity may consume surface fuel layers and cause charring of the top centimeter of mineral soil (NPS 2005c).

For instance, a study conducted in Badlands National Park in 2001–02 found that temperatures and residence times of most prescribed burns were not sufficient enough to cause catastrophic damage to prehistoric resources (NPS 2005c). Impacts of the fire—mostly black or light brown carbonaceous residues—would not impact the scientific value of the objects. Subsurface temperatures were also found to have negligible impacts on buried objects. Unpublished monitoring data collected at Dinosaur National Monument also indicates that soil in sagebrush fires seldom reached temperatures in excess of 50°C–55°C on bare soil surfaces (NPS 2005c).

Fires often represent an extraordinary opportunity to document archeological sites. Dense vegetation that obscures the ground surface is typically consumed, and its removal results in the ability to document heretofore-unidentified sites. Fires may also present the challenge of protecting archeological sites from the damaging effects of natural erosion, site vandalism (looting), and inadvertent damage as a result of fire suppression activities or post-fire rehabilitation efforts.

Actual effects of fires on prehistoric or historic archeological resources would depend on the location, severity, extent, and timing of the fire. There are variable effects based on the fire intensity, duration of heat, heat penetration of the soil, the use of suppression equipment, and other factors. Fires may result in

- loss or damage of physical artifacts (dependent on construction material—e.g., wood, shell, masonry, clay, stone, bone, plant, or other organic material—and context—soil, rock shelter, surface deposit, or buried deposit)
- loss or damage to contextual information, including compaction, erosion, and partial or complete consumption of organic matter
- inability to relocate previously identified archeological sites without vegetation context
- ability to locate previously undetected cultural resources obscured by vegetation
- increased potential for vandalism to archeological sites
- increased knowledge of the areal extent of archeological context for previously recorded sites caused by exposure of other site features
- change in the potential for long-term preservation of artifacts (such as artifacts that may become more brittle)
- consumption of or decreased potential to detect some archeological resources, such as charred surficial deposits of bone, including skeletal remains
- increased protection for and potential impact avoidance on known archeological sites (in low-intensity fire or hazard fuel reduction)

These variable effects of fire would continue to be minimized by a survey of areas proposed for fire use and avoidance of sites with sensitive archeological resources and/or use of low-intensity burns in areas containing subsurface resources. Additional environmental impact analysis would also occur as part of the fire plan or burn plan approval process.

ALTERNATIVE C IMPACTS

Impacts would be similar to alternatives A and B, with both short- and long-term negligible to minor adverse and negligible beneficial impacts from potential construction projects, and long-term beneficial impacts from better understanding of Reserve resources. Negligible to minor impacts associated with continuing visitor use activities and permitted activities, such as grazing, would also continue, at least in the short-term, depending on whether permittees take advantage of a grazing buyout program. As in alternative B, there would be negligible to moderate adverse impacts on archeological resources from the potential use of fire to restore vegetation communities, as well as potential for a range of impacts from development of management plans for California Trail resources, fire, climbing, grazing, and vegetation.

As in alternative B, the potential would exist for additional short- and long-term negligible to minor adverse impacts from a variety of construction projects, including many of the same actions identified in alternative B as well as construction of a trail to the summit of Smoky Mountain. Short-term impacts would occur because of the potential for uncovering artifacts, while long-term impacts could include inadvertent displacement of unknown resources before mitigation measures were implemented. These impacts could occur with the new equestrian staging area near the Bread Loaves intersection, construction of a new visitor center (larger than the house expansion in alternative B, but smaller than the facility in alternative A), restoration of the Circle Creek impoundment, reconfiguration of the Reserve campsites, construction of a turnaround at the Indian Grove overlook, and construction of new trails or improved connections within or outside the Reserve. Possible trail connections might include Independence Lake, Castle Rocks State Park, and/or trails within the Reserve, such as a trail that would connect inscription rocks in the California Trail corridor, based on a new trails management plan.

Alternative C would also include construction of an amphitheater and outdoor learning center at Smoky Mountain Campground. This area is not within the area previously surveyed for Smoky Mountain Campground and would therefore undergo additional surveys as proposed designs were identified. It was within a recent BLM archeological survey undertaken based on proposed hazard fuel reduction activities. In alternative C, there would also be potential for long-term beneficial impacts from boundary modifications that could include additional archeological sites. For instance, during the survey for Smoky Mountain Campground, three sites were found on BLM land and were avoided by construction. With the proposed boundary modifications under alternatives C–D, Smoky Mountain Campground would be within the Reserve. A recent BLM survey of approximately 1,000 acres of Smoky Mountain detected an unknown number of archeological resources.

As in alternative B, there would be short-term adverse and long-term beneficial impacts associated with additional removal of nonhistoric fences from grazing allotments if the total number of grazing areas and cattle decreased (through buyouts in this alternative, rather than attrition).

As in alternative B, there would be long-term beneficial impacts from archeological investigations at the historic Kelton-Boise stage station site; actions protecting mining, homesteading, and ranching areas; additional interpretation of archeological resources; additional research related to archeology, as well as from dissemination of research through media, public programming, and researcher presentations; and ongoing protection of archeological resources through the RNA expansion.

In addition there would be increased beneficial impacts in alternative C from promoting collaboration with partners, such as universities, to better understand regional human use and adaptation and to improve research opportunities within the Reserve; clarifying the route of the California Trail corridor; developing a treatment plan for California

Trail resources; and working with partners to determine whether a historic district associated with the homesteading era is appropriate. Overall, improved connections to archeological and cultural resources information would occur through researcher programs and public participation in hands-on activities.

ALTERNATIVE D IMPACTS

Impacts would be similar to alternatives A–C, with both short- and long-term negligible to minor adverse and negligible beneficial impacts from potential construction projects and long-term beneficial impacts from better understanding of Reserve resources. Negligible to minor impacts associated with continuing visitor use activities and permitted activities, such as grazing, would also continue.

As in alternative B, there would be potential for a range of adverse impacts from implementation of management plans for California Trail resources, fire, climbing, grazing, and vegetation, as well as beneficial impacts from preserving and interpreting features associated with historic mining, homesteading, and ranching.

Beneficial impacts associated with researching, documenting, and protecting archeological resources would be the same as in alternative A. In alternative D, there would be additional indirect beneficial effects from conducting archeological demonstration projects to improve visitor understanding of Reserve resources and from potentially allowing commercial organizations to present more in-depth programs on archeology.

As in alternative C, beneficial effects would ensue from preserving resources associated with the California Trail, including developing a treatment plan for California Trail resources and clarifying the route in partnership with stakeholders. There could also be long-term beneficial impacts in alternative D from acquiring an easement from private landowners that would protect additional portions of the California Trail. Establishment of new trails would have the same potential for negligible to minor adverse impacts as in alternative C,

with a trail that would allow visitors to explore the signature rocks and the California Trail corridor without having to walk along the road, and linkages to areas such as Independence Lake and Castle Rocks State Park, in addition to the proposed trail to the summit of Smoky Mountain.

Most proposed construction projects would be the same as identified in alternatives B or C, with development of another loop at Smoky Mountain Campground, an equestrian staging area near the Bread Loaves intersection, a new visitor center facility, and reconfiguration of the Reserve campsites area. As a result, the same potential would exist for negligible to minor adverse impacts on archeological resources, which would be reduced by the implementation of mitigation measures prior to and during ground disturbance. In addition, instead of providing only a turnaround off of Logger Springs Road for the Indian Grove overlook, a formal parking area would be developed.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on archeological resources (as appropriate to the alternative) would include the following:

- Continue to increase the inventory and monitoring program for archeological resources, including conducting surface and subsurface testing as necessary to document the potential for archeological resources or to understand the presence, extent, and/or significance of archeological resources found.
- Halt work in the discovery area should unknown archeological resources be uncovered during project implementation. The Reserve Cultural Resources Program Manager would be contacted, the site secured, and the Reserve would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1990. In compliance with this act, the National Park Service

would also notify and consult concerned tribal representatives for the proper treatment of human remains, funerary, and sacred objects, should these be discovered.

- Document and avoid previously unidentified archeological sites and prepare a determination of eligibility for the National Register of Historic Places for potentially eligible sites.
- Relocate work to a nonsensitive area if archeological resources are encountered during proposed construction activities. In conducting site testing and documentation, the emphasis would be on taking actions that would avoid further disturbance to the site.
- Track the number of incidents (by complaints, reports to rangers, and ranger observation) of graffiti, ground disturbance, damage to structures, and loss of historic fabric to assess resource condition and the level of visitor use impacts on cultural resources. To ensure that minimal incidences occur, visitor education and enforcement of Reserve regulations would continue and closure of particularly vulnerable areas would be considered, such as by using fencing where appropriate. Increased patrols and ranger presence would also be considered for high-use areas where cultural resources are known to exist.
- Continue to survey recreational resource areas (such as hiking trails, climbing routes) to avoid impacts on archeological resources.
- Continue to conduct consultation with American Indian tribes. As appropriate, under the National Historic Preservation Act, additional consultation would also occur as specific plans are developed.

Measures specific to fire use include the following:

- Survey areas proposed for fires for the presence of archeological resources prior to the development of fire plans (and subsequent environmental impact analysis). Post-burn surveys would also be conducted.
- Refrain from allowing ground-disturbing activities in known sensitive archeological resource sites.
- Consider the location and extent of known sensitive archeological resources in the decision to use fire.
- Include the Reserve archeologist, historians, and other resource specialists (as applicable) in the multidisciplinary planning and fire suppression process to prevent damage to known sensitive resources. Conduct reconnaissance surveys after prescribed fires and wildfires in areas where surface vegetation has been removed to locate potential archeological resources and landscape features.
- Refrain from constructing fire lines in the vicinity of known archeological resources.

CUMULATIVE IMPACTS

Archeological resources in the Reserve and surrounding areas have probably been adversely impacted to varying degrees from past construction-related disturbance (prior to the advent of archeological resources protection laws), from visitor use, vandalism, erosion, and from other natural processes. It is likely that other Reserve management actions—including the development of some facilities and use of the Reserve before IDPR/NPS management—resulted in disturbance to or inadvertent damage of archeological resources. Because most climbing routes within the Reserve were established prior to the Reserve, it is possible that archeological sites are present near these; however archeological surveys of the Inner City area, as well as those conducted for proposed development since Reserve establishment, have only identified a few sites near, but not used for climbing routes. Because mitigation measures

would continue to be employed to minimize impacts on potentially unidentified cultural resources in proposed and future projects in the Reserve, it is likely that there would be increased protection for archeological resources from potential future adverse impacts.

In other nearby areas, such as the Castle Rocks Interagency Management Area, climbing routes were also established prior to management of the area by the Bureau of Land Management, leading to a potential for climbing routes that occur within or near archeological sites, contributing cumulative adverse effects. By contrast, in Castle Rocks State Park, a large parcel of private land was surveyed for archeological resources prior to becoming public land, and since then proposed climbing routes have avoided archeological sites (pers. comm. Reserve archeologist 2012–13 during development of plan). Both of these areas have been found to possess a higher density of sites than is known to exist in the Reserve.

According to the “Draft National Climate Assessment,” extreme weather events, such as storms and floods are projected to become more intense as the atmosphere continues to warm (USGCRP 2013). This could result in accelerated erosion of or catastrophic damage to the California Trail or other important cultural resource features in the Reserve.

There probably have been and would continue to be negligible to moderate adverse impacts on archeological resources from actions on private lands within and surrounding the Reserve, including on lands associated with the California Trail. Most of these actions would probably continue to be unintentional; however, intentional vandalism, such as looting, could also occur and has been documented within the Reserve and surrounding area.

Past and present actions that could affect archeological resources in the Reserve include farming, grazing, ranching, livestock trailing, and development of Reserve visitor use facilities, including trails, signs, and vault toilets, as well as ongoing and potentially increasing visitor use.

There would also continue to be a potential for negligible to minor localized adverse effects on archeological resources from visitor use as a result of illegal collection of artifacts and possible unintentional disturbance of sites. The Reserve receives an estimated 100,000 visitors per year and trends indicate that visitation would probably continue to increase over time. Because impacts would be related to visitation and not to specific actions in the alternatives, impacts would be similar among the alternatives.

Proposed future actions include continuation of many of these activities, as well as potential construction of a new visitor center facility, improvements to administrative facilities, reconfiguration of camping within and outside the Reserve, and ongoing maintenance and rehabilitation of Reserve facilities, such as roads and trails. These activities would continue to result in negligible to minor—with some localized moderate—adverse impacts on archeological resources.

Alternatives A–D would therefore contribute primarily negligible to minor adverse cumulative effects on archeological resources. When the impacts of alternatives A–D are added to impacts from past, present, or future actions that would probably occur in the Reserve, including from proposed ground disturbance associated with planned rehabilitation or construction projects, cumulative impacts on archeological resources would be minor.

CONCLUSION

Because mitigation measures would be employed to avoid impacts on known sites and to minimize disturbance of unknown sites, there would be no adverse effect on archeological resources as a result of the implementation of the alternatives under the proposals in this general management plan. If a potential for adverse effects were to occur, the action would be relocated or otherwise modified to avoid these.

CULTURAL RESOURCES: Cultural Landscapes Background

City of Rocks National Historic Landmark District

As noted in “Chapter 4: Affected Environment,” the City of Rocks National Historic Landmark is composed of nationally significant cultural resources related to the California Trail. Wagon traffic through the area peaked in 1852 and began a bumpy decline through the 1880s (Unruh 1979). Cultural landscape resources relate to this historic context within the boundary of the national historic landmark.

City of Rocks was designated a national historic landmark on July 19, 1964. It is nationally significant under the historical theme of “Westward Expansion and Extension of the National Boundaries to the Pacific, 1830–1898” (NHL Theme XV). The period of significance for the national historic landmark is 1843–1882. The boundary encompasses 12,840 acres of physical resources and reflects the environmental setting associated with one of the largest overland migrations in American history (NPS 2008a).

In addition to creating the environmental context and setting for the California Trail corridor, significant cultural landscape resources that remain today include trail remnants (ruts), encampment sites, register rocks, views and vistas, and geological landmarks, as well as the open character of the landscape itself. This includes the following:

- Approximately 9 miles of California Trail wagon trail remnants and the Salt Lake Alternate route of the California Trail, including the route and alignment of the trails (although only approximately 3.5 miles are located on public land)
- Wagon wheel traces (ruts), and other topographical remnants of trail routes (most notably in Section 23 T16S/R23E)

- Encampment sites, such as Circle Creek Basin and the site of the Kelton-Boise stage station; 11 monolithic inscription rocks; and archeological sites, such as the remains of 5 structures including 2 buildings, a well, cellar, and constructed impoundment pond, as well as fencing and road traces (Moon Homestead)
- Geological formations and unique topographic landmarks documented and described in emigrant journals
- The environmental context and landscape setting for the trail corridor, including historically important viewsheds from the trail corridor

Historic Rural Setting Landscape

Also within the Reserve, but not associated with the national historic landmark, are a variety of features that date to early land use and activity in City of Rocks, such as homesteading, dryland farming, mining, and ranching. Although the landscape associated with the historic rural setting is not listed in the national register and does not contribute to the City of Rocks National Historic Landmark, it is identified in the Reserve's enabling legislation. These features may have local significance based on future research and work with the community outside the Reserve boundary.

"The historic rural setting is the spacious, open expanse and the cultural artifacts resulting from the cumulative land uses beginning with the trail era and [continuing] through the establishment of the Reserve in 1988. . . . When the Reserve was established, the landscape was a wide-open expanse of rangeland interrupted only by necessary fence lines and dirt roads marking pastures and property lines" (Reserve 1996a: p. 38). Few structures were present. "Grazing livestock and occasional trailing, branding, and fence-building activities made it a dynamic expression of traditional ranching operations. This historic rural setting had an increasingly rare and highly scenic quality that Congress recognized as a significant cultural value of the Reserve" (Reserve 1996a: p. 38–39).

Cultural landscape resources related to the settlement era include roads, irrigation works, building and structural ruins, homestead sites, mining features, corrals, fences, and gates. According to the cultural landscape inventory for City of Rocks, structures that remain on public lands from this era include: the Y Corral, Ted King Corral, Indian Grove Corral, Dam #1, Dam #0, the system of juniper and barbed wire fences and gates that mark the boundaries of grazing allotments, and two-track and dirt roads that provided access to these areas (NPS 2008a: p. 52).

a. Cultural Landscapes Methodology

Context of impact: Cultural landscapes were considered within City of Rocks National Reserve.

Type of impact: Impacts on cultural landscapes result from physical changes to contributing characteristics of a resource or its setting. Adverse impacts diminish the characteristics that make the structure or landscape eligible for the National Register of Historic Places or diminish the overall integrity of the landscape. Beneficial impacts can include restoration or rehabilitation of resources or removal of incompatible or noncontributing elements.

b. Impacts on Cultural Landscapes and the City of Rocks National Historic Landmark

City of Rocks was designated a national historic landmark on July 19, 1964, and is listed in *History and Prehistory in the National Park System and the National Historic Landmarks Program: 1987*, under theme X, "Westward Expansion of the British Colonies and the United States, 1763–1898," subtheme D: "Western Trails and Travelers," facet 4, "California Trails and Settlement of California."

NHL national significance is ascribed to districts, sites, buildings, structures, and objects that possess exceptional value or quality in illustrating or interpreting the heritage of the United States in history, architecture, archeology, engineering, and culture, and that possess a high degree of integrity of the following seven attributes: location, design, setting, materials, workmanship, feeling, and association.

These seven attributes are used to evaluate integrity for national historic landmarks.

Location refers to the place where the historic property was constructed or the place where historic events occurred. *Design* is a combination of elements that create the form, plan, space, structure, and style of a property. *Setting* is the physical environment of a historic property—the character of a place, its topography, vegetation, simple manmade features such as paths and fences, and the relationship between features and open space. *Materials* are “the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.” Similarly, *workmanship*, “the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory,” is seen in elements in the large-scale landscape. *Feeling* refers to a property’s expression of the aesthetic or historic sense of a particular period of time even, in this case, despite the maturation of original landscapes. *Association* refers to the connections we make today between a particular place and an important historic event or person (NHL Program).

Impacts occur when management action or inaction results in a change in one of the seven characteristics noted above. Beneficial impacts would help to preserve the resources for which the national historic landmark was designated, while adverse impacts could affect the characteristic in a way that changes its eligibility for the National Register of Historic Places.

ALTERNATIVE A IMPACTS

Although the City of Rocks National Historic Landmark cultural landscape comprises a major portion of the Reserve, most of the characteristics of this cultural landscape would not be affected by its ongoing management under alternative A. Characteristics, such as circulation, natural systems and features, vegetation, and views and viewsheds, and the characteristics associated with them would continue to be present. However, some of their features have been obscured or modified over

time, as human activities continued to occur on the landscape following emigrant trail use. Although the general characteristic of an open landscape remains, specific land uses changed over time with the advent of homesteading, farming, ranching, and grazing. Similarly, spatial organization has also changed over time as the route of the California Trail corridor and its relationship to landscape features has become less evident to the casual observer.

The following cultural landscape characteristics under alternative A would continue to be preserved: natural systems and features, circulation, views and vistas, and archeological sites. The characteristics of the NHL cultural landscape that convey the characteristics of location, feeling, setting, and association include the following:

- Land use: The principal activities in the landscape that have formed, shaped, or organized the landscape as a result of human activity
- Spatial organization: The composition and sequence of outdoor spaces within the district
- Circulation: The means and patterns of movement through the district
- Views and vistas: Constructed or natural openings that direct how the landscape is seen
- Natural systems and features: The way existing landscape features, such as rock outcrops or water bodies, are used in the cultural landscape
- Archeological sites: Areas showing evidence of the remains of human activity

Land use: Under alternative A, it would continue to be evident that land use within the City of Rocks has changed over time, because it has not served as a destination or route for emigrant traffic traveling along the California Trail or Salt Lake Alternate for more than a century. The wagon ruts and emigrant inscriptions, however, serve as tangible evidence of this past land use. Because most homesteads, farming, and associated features are no longer visible, the landscape is gradually reverting to the historic

scene experienced by emigrants. The scene of cattle grazing in the area is reminiscent of the California Trail period, when emigrants allowed their livestock to replenish before strenuous travel over Pinnacle and Granite passes (NPS 2008a). Livestock grazing, which has continued over the past century, is also one of the few remaining land uses from the homesteading era. With the onset of public use in the area, visitor use development has generally been constructed in discreet locations, where visitors can see and understand the California Trail scene without intruding on its character. This moderate beneficial effect would continue under alternative A.

Spatial organization: The spatial organization of the California Trail through City of Rocks is directly related to natural systems and features, topography, access to water, and views and vistas within the landscape. Key features of spatial organization within the Reserve include the routes of the California Trail and Salt Lake Alternate, which remain visible, in close-up views, as ruts and alterations of the landscape, and as routes through aerial photos and satellite imagery.

Circulation: The alignment of the California Trail through City of Rocks generally follows the path of least resistance through the narrow mountain passes and expands outward in locations where there was room for camping, vegetation for grazing livestock, and available water. The trail corridor is marked by natural rock formations that became important wayfinding markers for the emigrants. As a result, the trail was not a single set of wagon ruts through the landscape; rather it was an alternating narrow and expansive corridor that suited the needs and preferences of the emigrants, wagons, and livestock that travelled along it (NPS 2008a: p. 40). Although circulation is evident from a distance and the path through the rocks is clear based on topography and emigrant diaries, today visitors can discern only traces of the California Trail and Salt Lake Alternate. The features that once made the trail evident have begun to fade, due to weathering and erosion over time, along with changing land uses—historically homesteading, farming, and mining, as well

as grazing, which persists to this day. Though historic landscape features are less evident than they once were, they would continue to be protected to the extent possible in alternative A, a long-term beneficial effect.

Views and vistas: Naturally existing views and vistas of the City of Rocks were long-awaited attractions and important wayfinding landmarks (NPS 2008a: p. 40). Views and viewsheds are generally the same as they were in the time of the emigrants; however modern homes and evidence of homesteading, farming, and ranching have altered historic views to include fences along property and section lines and irrigation development. As noted in “Chapter 4: Affected Environment,” in spite of these changes, and with the exception of several relatively small-scale features such as corrals and fences, the cultural landscape of the Reserve is remarkably free of major structural components. The views experienced within and from City of Rocks are integral components of the cultural landscape and have changed very little since the California Trail era (NPS 2008a: p. 41). This would continue in alternative A as a long-term moderate beneficial effect.

Natural systems and features: Natural systems and features experienced by the emigrants as they traveled through the City of Rocks would continue to be evident in alternative A. These include such features as the granite monoliths, wide expansive basins, natural hydrologic processes, and an open vegetative character. Although vegetation has changed over time as woody plants have begun to encroach on once-native grasslands, some areas such as the Circle Creek Basin remain verdant, while other areas that once provided the emigrants with water have been diverted or have dried out. Native grasslands dominated by perennial grasses and native forbs are now dominated by nonnative grasses and forbs as well as native shrubs, such as sagebrush and juniper. Nonetheless, the open character of vegetation in the basins, and dark scrub and woody vegetation in the uplands contribute to the integrity of the historic setting (NPS 2008a: p. 39) and would continue to remain a long-term beneficial effect in alternative A.

Archeological sites: Archeological features from the period of significance include more than 1,650 feet of trail ruts on public land and the emigrants' inscriptions on the registry rocks in Circle Creek Basin (NPS 2008a: p. 41). These features would continue to be protected, and many of them would be interpreted for visitors in alternative A. The Reserve would continue to take accurate field photography of the remaining inscriptions, and would reduce the incidence of post-emigration graffiti (including by continuing to prohibit climbing on inscription-bearing rocks, minimizing camping near the rocks, and installing fences to preclude livestock from grazing directly adjacent to the rocks). The Reserve would also continue to improve interpretive and educational programs related to archeological sites, resulting in long-term beneficial effects on preserving archeological resources, including those associated with the national historic landmark.

Existing Conditions: The boundary of the national historic landmark and the Reserve would therefore continue to protect areas within the Reserve consistent with NPS, IDPR, and private landowner management. According to the 2008 cultural landscape inventory:

City of Rocks retains integrity to the period of significance. The cultural landscape, as documented in the CLI, retains integrity reflected primarily in the aspects of location, setting, feeling, and association. The site's location as defined by its dramatic, natural scenery of granite monoliths, expansive basins, and vegetative composition helps convey the landscape's location and setting. Feeling and association is also conveyed through the significant views and vistas of Circle Creek Basin, Twin Sisters, and Granite Pass that are still as vivid and impressive as they would have been for the overland emigrants. Secondary aspects of integrity which include design, workmanship, and materials are evident by the trail's composition, wagon ruts, and emigrant inscriptions. Today, changes to the historic scene include the homestead ruins in Circle Creek Basin, dirt roads, juniper pole fences

and modestly located basic recreational facilities. These newer additions to the landscape are minor intrusions within the context of the massive rock features and broad, open basins that define the character of the landscape (NPS 2008a: p. 41).

As a result, management of the cultural landscape under alternative A would continue to result in long-term moderate beneficial effects. In this alternative, nearly 9 miles of the California Trail would continue to be managed for the features identified as significant in the national historic landmark. This would occur through existing zoning via the California Trail subzone in the Historic and Natural Preservation Zone. Although only about 3.5 miles of the trail are on public land, contemporary visitors would continue to have the opportunity to experience a landscape similar to what the emigrants experienced more than 150 years ago.

Under alternative A, some resources related to the history of the California Trail and the Reserve would continue to be located outside the current boundary of the Reserve. This would continue to be a negligible to minor long-term adverse effect on the cultural landscape (unless purchased under a willing seller/willing buyer opportunity).

Although some aspects of the cultural landscape have changed over time, the open character of the cultural landscape within the Reserve today remains very similar to that experienced during emigration in the 19th century. Under alternative A, historic viewsheds of an open landscape surrounded by large rock formations would continue to be preserved, a long-term beneficial effect.

Ongoing impacts associated with alternative A: There would continue to be minor long-term adverse impacts from development within the Cassia County Historic Preservation Zone and from continuing private uses on private lands. Ongoing use and maintenance of the roads within the Reserve (which are near but may not follow the path of the California Trail) would continue to have long-term minor adverse effects on the cultural landscape, particularly where

these cross the California Trail. However, they would also continue to provide an opportunity to experience California Trail resources without intruding on the character of these, a long-term minor to moderate beneficial effect.

Livestock grazing within the California Trail subzone would continue to be reminiscent of historic uses, a present-day action that is different from, but similar to, the use the trail received during its period of significance, resulting in a long-term moderate beneficial effect. (See “Chapter 4: Affected Environment” for a description of the trail area condition during that time.)

Retaining the focus of operations activities outside of the Reserve and/or the viewshed of the California Trail would continue to have direct and indirect long-term beneficial effects on the cultural landscape associated with the City of Rocks National Historic Landmark area. Activities, buildings, and other structures that would continue to occur outside the Reserve and/or viewshed of the California Trail include administrative and maintenance operations, some recreational activities, and facilities proposed by others (such as for communications). Updating the NHL designation to include additional eligible resources currently outside of the NHL boundary but within the Reserve would have long-term beneficial effects on preserving the California Trail landscape and on facilitating additional research related to it.

Providing for ongoing recreational activities associated with the California Trail area would continue to have long-term negligible to minor adverse effects on the California Trail from use, and long-term indirect beneficial effects from engendering support to preserve it. Expansion of camping at Smoky Mountain would have long-term minor adverse effects on the California Trail Zone, because this would make it possible to see recreational vehicles from some viewsheds within the Reserve. As a result, additional trees could be planted to screen the area. Construction of the visitor center, while it could highlight views of the California Trail, would avoid impacts on the trail, a long-term beneficial effect.

Alternative A would also continue the climbing ban on Twin Sisters, a long-term beneficial effect on the national historic landmark (cultural landscape). This formation is significant for its location at the junction of the California Trail and the Salt Lake Alternate, because it can be seen from the Salt Lake Alternate and from other distant vantage points, and because it was referred to by the majority of emigrants who described rock formations in their journals or later writings. Based on the “Twin Sisters Resource Study” (Reserve 1993), while mitigation measures could be considered to reduce the impacts of recreational climbing use on the scenic, natural, and auditory environment on and around the Twin Sisters, public use, including recreational climbing use of the pinnacles, is an inappropriate activity related to the protection of cultural resources. This study concluded that it is most appropriate to manage the formation within the context of the California Trail, where cultural resources are the paramount value to be protected. In March 2000 a court ruling affirmed this management strategy.

ALTERNATIVE B–D IMPACTS

Many of the impacts noted under alternative A would continue in alternatives B–D; however, there would be additional long-term beneficial effects from implementing a variety of measures in alternatives B–D. There would also be the potential for adverse effects associated with new development in the national historic landmark; however, this development would be located away from the California Trail and viewsheds associated with it.

Among the beneficial effects in alternatives B–D include stabilizing trail resources (including ruts and inscriptions) through development of an archeological management plan; working with ranchers to prevent or minimize (if appropriate) livestock use and impacts associated with the use of motor vehicles directly on or near the trail ruts; communicating with other agencies and organizations such as the Oregon-California Trail Association to employ appropriate trail stabilization techniques/measures on a case-by-case basis; and redirecting (where possible)

stormwater runoff upstream to prevent excessive down-cutting and channeling within the California Trail corridor.

In alternatives B–D, in addition to beneficial impacts from preserving features associated with the California Trail as noted under alternative A, long-term beneficial effects would result from developing an archeological management plan for stabilization and preservation of California Trail resources, including ruts and inscriptions. Developing a vegetation management plan for the California Trail corridor would also have an indirect long-term beneficial effect. This plan would provide strategies for rehabilitation, and in some cases, restoration of the landscape to better reflect the historic landscape setting and environmental context for the California Trail corridor and rural historic landscape. Additional long-term beneficial effects could arise from partnering with a private landowner to locate the site of the historic Kelton-Boise stage station, which would in turn enhance public understanding of the historic rural setting. Other beneficial effects would result from undertaking additional historical archeological research projects to identify, document, and preserve historic resources. This could result both in the identification of new sites and in the acquisition of better information about known sites.

The potential use of fire would generally have long-term moderate beneficial effects on preserving the landscape setting and associated historic character of the California Trail landscape because specific provisions (mitigation measures) would be taken to ensure preservation of sensitive historic archeological resources.

As in alternative A, expansion of camping at Smoky Mountain would have long-term minor adverse effects on the California Trail Zone if recreational vehicles were visible from viewsheds along the California Trail corridor. Because the campground would offer a diversity of camping opportunities depending on the alternative, new recreational vehicle sites could be located to minimize potential impacts on the viewshed and/or could be screened and would therefore have reduced (no or long-term negligible to minor) adverse impacts.

The Reserve would support and promote new research about California Trail resources. This would result in a long-term beneficial effect to cultural landscapes by improving baseline documentation and public understanding and stewardship of resources.

New development in the national historic landmark would include an equestrian staging area near or west of the Bread Loaves intersection. Although the equestrian staging area would be located within the national historic landmark, it would be visually concealed from the California Trail because it would contain large vehicles with trailers. Because of its location, these would not be visible from the California Trail. It would also be designed to have few or no adverse impacts by using minimal signage and by not incorporating structures or features other than those related to parking. Parking of equestrian trailers which now occurs along the main roadway close to the California Trail and within its viewshed would be improved by establishing this lot. As a result, it would have long-term minor adverse and beneficial effects.

Additional Impacts Associated with Alternative B

In alternative B, a slightly larger California Trail Zone would have long-term beneficial effects by allowing preservation of areas historically used during the emigrant migrations and would include some views toward other notable areas and resources within the national historic landmark, including some related archeological sites. Similarly, the Historic Rural Setting Zone encompassing most of the private lands in the Reserve would be revised in alternative B to focus on enveloping traditional grazing areas, a long-term beneficial effect. Generally, the smaller Visitor Facilities and Access Zone combined with the changes to the California Trail and Historic Rural Setting Zones would result in fewer opportunities for development and thus more protection for the City of Rocks National Historic Landmark and historic rural setting.

Under alternative B, no changes are proposed in the number or type of grazing permits. Adverse and beneficial impacts noted above in alternative A would continue. Modifying or eliminating grazing allotments in the California Trail Zone by expanding these permits in other areas to reduce cumulative effects associated with erosion and to provide visitor access would have long-term beneficial effects on the cultural landscape and preservation of the California Trail features in this zone. Similar benefits could occur from modifying grazing in the Visitor Facilities and Access Zone. Over time, reducing or eliminating grazing allotments through attrition could have long-term beneficial effects on improving the cultural landscape if fences were removed, grassland vegetation was restored, and/or public access for interpretation was enhanced.

The proposed new multiuse trail to link California Trail resources would have minor long-term adverse impacts on the cultural landscape as a result of constructing the trail near but not on California Trail remnants, inscription rocks, or other trail resources. Because the trail would connect California Trail resources, it would be located adjacent to and connect these but would be designed and routed to have minimal adverse effects on viewsheds and other character-defining features associated with the trail. This would result in minor adverse impacts. The new trail would be approximately 2.4 miles long and would begin near the end of the hiking trail near Nicholson Ranch and end at the Tea Kettle Trail. This trail would expand California Trail interpretation for visitors by linking these resources in a pedestrian (hiker), equestrian, or bicyclist experience, instead of only along a road.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

In alternative C, the California Trail Zone would be larger than in alternative B and would expand into the Circle Creek Basin. This would have a long-term beneficial effect on the cultural landscape by preserving areas historically associated with the trail, and would also encompass viewsheds not currently within the California Trail Zone.

As in alternative B, the proposed new multiuse trail to link California Trail resources would have minor long-term adverse impacts on the cultural landscape as a result of constructing the trail near but not on California Trail remnants, inscription rocks, or other trail resources. Along with the new trail to the summit of Smoky Mountain, this trail would expand California Trail interpretation for visitors by linking these resources in a pedestrian (hiker), equestrian, or bicyclist experience, instead of only along a road. As in alternatives A and B, expansion of camping at Smoky Mountain would have long-term minor adverse effects on the California Trail Zone if recreational vehicles were visible from some viewsheds within the Reserve. Impacts would be reduced, however, because the design could minimize impacts, and because trees could be planted to screen the area.

Reducing or discontinuing grazing over time through voluntary grazing buyouts would have long-term beneficial effects on the cultural landscape associated with the California Trail, where increased protection would be emphasized. Conversely, retaining cattle on the landscape would continue to contribute to the historic rural setting, therefore reducing cattle grazing could have a minor long-term adverse effect on the historic rural setting.

Boundary expansion toward the east in alternatives C–D could add another 1.1 miles of the California Trail to the Reserve, bringing the total length of the trail within City of Rocks to approximately 10 miles, a long-term beneficial effect. As in alternative B, the Reserve would also work with Cassia County and private landowners to protect the viewshed toward Granite Pass and the southwest portions of the California Trail, a long-term beneficial effect on preservation of the California Trail corridor. This and cultural landscape protection around the east entrance to the Reserve could be accomplished through a mechanism such as voluntary sale of scenic easements to the National Park Service by private landowners.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

Potential easement agreements with private landowners for the southwestern portion of the California Trail could result in additional protection for another 6.5 miles of the trail and improve scenic viewshed protection toward the Cedar Hills and Sparks Basin. This protection would be accomplished, if possible, through voluntary sale of trail easements by willing sellers. As with the potential boundary expansion or easements that would protect areas in the eastern portion of the Reserve, an easement on the west would result in long-term beneficial effects on the California Trail corridor and cultural landscape resources.

Impacts would be the same as in alternatives B and C for the new trail linking California Trail resources and the same as in alternative A associated with potential impacts on the California Trail viewshed, because the campground would continue to focus primarily on recreational vehicles.

In alternative D, the California Trail Zone would be similar to alternative A; however, it would also take in a larger area to the northwest to encompass additional viewsheds observed by the emigrants, a long-term beneficial effect.

Because grazing would continue to be maintained in all zones and visitor participation activities associated with it would be enhanced, there would continue to be ongoing negligible to minor adverse effects to the cultural landscape, similar to alternative A.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures that would minimize impacts on cultural landscapes would include those identified above under “Prehistoric and Historic Archeological Resources” as well as the following:

- Consider planting vegetation to screen modern intrusions from the cultural landscape, such as recreational vehicles at Smoky Mountain Campground.
- Conduct condition assessment updates for the cultural landscape inventory (approximately every six years) to describe the current condition of the landscape and to identify any potential preventable adverse impacts.
- Develop an archeological treatment plan for stabilization of California Trail ruts and other features associated with the California Trail corridor.
- Remove nonhistoric fences within the California Trail corridor.
- Continue to relocate power lines outside of the California Trail viewshed.
- Photo-document emigrant inscriptions.
- Continue to remove bolts from the inscription rocks unless removal would result in damage to the rock—where it is not possible to remove anchors, remaining hardware would be camouflaged.

CUMULATIVE IMPACTS

The NHL boundary was originally drawn to include only significant resources but was expanded in 1987 to include those lands that are NPS-owned or cooperatively managed (NPS 2008a: p. 2, 5). As part of the cultural landscape inventory, lands owned or managed by the National Park Service were inventoried (NPS 2008a: p. 5). At the time, approximately 4,247 acres were privately owned. Although adjacent private and public lands are likely to contribute to the significance of the national historic landmark, only lands within the Reserve that were publicly owned were documented as part of the cultural landscape inventory. Other areas that contain segments of the California Trail or

provide views and vistas integral to the emigrant experience are also likely to be eligible; however, most of these areas would continue to remain outside the boundary of the national historic landmark, a negligible to minor long-term adverse effect (unless purchased under a willing seller/willing buyer opportunity).

Past actions have resulted from the following minor to moderate cumulative impacts noted in the cultural landscape inventory for the NHL landscape:

Erosion: The soil composition within City of Rocks is highly erodible. Water erosion is evident where ruts have been deepened by seasonal and intermittent gullies. Wind erosion has resulted in a general flattening of trail rut features. Erosion is exacerbated by contemporary human uses, such as travel by horses, motor vehicles, and livestock grazing (NPS 2008a: p. 72).

Vegetation / invasive (nonnative) plants: Vegetation changes include an increase in invasive plant populations and growth of woody species where they were not historically found. Nonnative species were introduced during the homesteading eras. Some of these plants are invasive and displace native vegetation that was present during the period of significance. Successional shifts have modified the historic scene, though the character of the vegetation communities is still largely intact (Morris 2006). This is most notable on the Twin Sisters' apron (NPS 2008a: p. 72).

Visitation: Visitor use, specifically rock-climbing, spray painting, and sand blasting on and near emigrant inscriptions, has resulted in obvious and detectable impacts. Impacts include exfoliation of inscriptions and black and red spray-painted graffiti (NPS 2008a: p. 72).

Exposure to elements: Emigrant inscriptions have been exposed to natural weathering for 150 years. The granite surfaces have naturally exfoliated from seasonal precipitation, including torrential downpours, hail, and

snow, and constant cycles of moisture saturation and drying from intense sun exposure. Henderson also states that there are further problems from orange- and black-colored lichens growing on the granite surfaces. In some cases they have grown over inscriptions, rendering them totally illegible. In addition, barn swallow nests directly above sites on Camp Rock and Monkey's Head allow droppings to accumulate over inscriptions beneath them. Mud from these nests has also accumulated over inscriptions on Pagoda, Elephant's Head, and Kaiser's Helmet (Henderson 1998: p. 16–18; NPS 2008a: p. 73) and on Register Rock (Bastis 2012).

Other: Livestock use and its associated practices and features have resulted in impacts on the historic scene, California Trail ruts, and emigrant inscriptions. Grazing has altered the historic vegetative communities and composition. Livestock grazing has increased the incidence of natural weathering and erosion of the historic trail ruts by denuding protective vegetative ground cover. Livestock travel and associated horse and motor vehicle traffic along the trail ruts has deepened the ruts in some areas while trampling and widening them in others. Grazing cattle in the vicinity of the inscription rocks have also rubbed the inscriptions over the decades, removing inscriptions and exacerbating the natural exfoliation of the granitic rock (NPS 2008a: p. 73).

Recent (2008) closure of the Circle Creek allotment to grazing has resulted in cumulative beneficial impacts on the California Trail corridor from minimizing the above adverse impacts within the closed area. Current projects include ongoing management of the California Trail corridor, including interpretation through programs and signs. The Reserve also placed 6,400 feet of power lines underground (2007) and purchased the J. E. Tracy property on the California Trail (2010).

Although the boundary of the Reserve would be retained and would continue to protect areas within City of Rocks consistent with NPS, IDPR, and private landowner management, portions

of the California Trail would also remain in areas outside the Reserve boundary. Remnants of the California Trail and Salt Lake Alternate on private property are more numerous and in some cases more intact than those within the Reserve. Trail ruts are found on the incline and decline from Pinnacle Pass on the H. Olen Ward property, on the northern portion of the Simplot property near Pinnacle Pass, and on the Brent Jones and J. E. Tracy properties running parallel with the road through Junction Valley. Trail ruts along the Salt Lake Alternate, later used as the Kelton-Boise Road, are also located on the Simplot property (NPS 2008a: p. 67).

Of the 13 register rocks bearing emigrant inscriptions that were identified in the climbing management plan, 10 also possessed climbing routes, with some showing evidence of bolts or damage to inscriptions from other climbing hardware (Reserve 1998a: p. 32). Because these and other emigrant inscription rocks identified more recently have since been closed to climbing based on approval of the Reserve's comprehensive management plan, there would continue to be long-term beneficial effects from discontinuing this impact. Former long-term minor adverse cumulative effects would continue but would be diminished somewhat by the Reserve's sensitive and systematic removal of climbing hardware in these areas.

Similarly, continued closure of the Twin Sisters formation to climbing would continue to have cumulative moderate beneficial effects from retaining a setting that preserves the historic feeling and association with the California Trail era. These qualities were important attributes in the City of Rocks' designation as a national historic landmark. Preserving these intangible qualities is as critical to protecting the integrity of the landmark as the preservation of its actual physical features (Reserve 1998a: p. 33).

Future actions contributing to cumulative impacts would continue to include the potential for new development on private lands and within the Cassia County Historic Preservation Zone. Depending on the extent to which new development occurs within or near the California Trail corridor, long-term negligible to

moderate adverse effects to the national historic landmark could occur. Cumulative beneficial effects would also occur from the placement of an additional 7.8 miles of overhead power line underground within the California Trail Zone, an ongoing action.

Additional cumulative beneficial impacts would be conveyed by the inclusion of an additional 1.1 miles of California Trail within the boundary of the Reserve in alternatives C and D, and by increasing the acreage associated with the California Trail Zone in alternatives B, C, and D. Because alternative C would include both the largest area within the California Trail Zone and the largest boundary expansion (same as alternative D), it would also confer the greatest beneficial effects.

As warming continues, natural resources (e.g., vegetation, streams) that are important components to a park's cultural landscape may change. Climate-related events such as droughts, floods, wildfires, and pest outbreaks are already disrupting ecosystem structures and functions in a variety of direct and indirect ways.

When actions in alternative A are added to the effects of other past, present, and future actions, there would continue to be minor to moderate cumulative adverse impacts and minor beneficial effects on the national historic landmark. When actions in alternatives B–D are added to the effects of other past, present, and future actions, minor to moderate cumulative adverse effects would also continue to occur. Beneficial effects would be greater than in alternative A because of the potential boundary expansion (alternatives C and D); enlargement of California Trail zoning (especially in alternatives B and C); additional cultural resources interpretation, such as from the summit of Smoky Mountain (alternatives C and D) and from the remodeled (alternative B) or new visitor center (alternatives C and D); as well as from specific actions to preserve California Trail ruts (all alternatives).

CONCLUSION

There would be no adverse effect on cultural landscapes or the national historic landmark as a result of the implementation of the alternatives under this general management plan. If a potential for adverse effects were to occur, the action would be relocated or otherwise modified to avoid adverse effects.

RECREATIONAL / SOCIAL RESOURCES

VISITOR EXPERIENCE, including:

- Access and transportation
- Visitor use opportunities
- Interpretation and education
- Visitor and employee safety
- Scenic resources

Impact Intensity

Negligible	Proposed changes would have no detectable effect on visitor access or transportation to or within the Reserve.
Minor	Changes in visitor access or transportation would be slightly detectable or localized within a small area of the Reserve or would not affect the whole visitor experience.
Moderate	Impacts would be readily apparent and would affect how visitors are able to access the Reserve.
Major	Impacts would be substantial, highly noticeable changes in ease of access and transportation.

Impacts on Visitor Experience: Access and Transportation

ALTERNATIVE A IMPACTS

Visitors would continue to be able to access the Reserve using motorized and nonmotorized transportation, a long-term beneficial effect. Although the primary road through the Reserve would continue to be owned and maintained by Cassia County, it would continue to be used by Reserve visitors to experience the lightly developed areas located alongside it within the Reserve. It would also continue to provide access to Reserve and USFS roads. Managing undesignated parking along Cassia County roads would continue to require collaboration with and support from the Cassia County board and officials. Because visitors often park along roadways that may have narrow shoulders, access may be intermittently difficult for other visitors during the peak season, a minor to moderate localized adverse effect. Vehicle access may continue to be intermittent or unavailable in winter because the road above Bath Rock is not plowed, a long-term seasonal minor to moderate adverse effect.

Visitor access to information from the existing visitor center would continue to have long-term adverse and beneficial effects, because the visitor center provides interpretation but is too small to adequately accommodate current visitation. When the visitor center is open, visitors could continue to obtain information about the Reserve. Within City of Rocks, a variety of waysides, kiosks, and printed media would continue to allow visitors to obtain information about the Reserve and its opportunities, a long-term beneficial effect on visitor access. Similarly, continuing to provide a variety of youth programs could indirectly benefit visitor access if youth returned with their families to experience opportunities at the Reserve.

If a new visitor use facility was constructed near the entrance to the Reserve on BLM-managed (IDPR-leased) land through an agreement with the Idaho Department of Parks and Recreation, there would be additional long-term beneficial effects on visitor access. Outdoor exhibits

would be available regardless of whether the visitor center was open, and new visitor use opportunities would take place outside of the facility. Because there would be an expanded area associated with the facility, parking, new access opportunities, and administrative staff offices would be co-located with the new building. The facility would also improve access because it would be larger than the small, 19th-century house that currently comprises the visitor center. The new building would improve visitor spaces, and sound from the orientation film and/or the information desk would not encroach on other parts of the facility, disrupting administrative or other visitor use as currently occurs. As a result, there would be long-term beneficial effects on improving access by reducing distractions when visitors are obtaining information or viewing the film.

There would continue to be long-term beneficial effects on visitor access and transportation from management and administration of the Reserve, including providing for recreational activities such as camping, hiking, climbing, bicycling, and horseback riding. Visitor access to these activities would probably continue to engender support for the Reserve and improve the overall visitor experience. Some visitors, however, would continue to experience delays in accessing climbing opportunities on popular routes, and some would find it difficult to park within the Reserve during the peak season near popular day-use trailheads. Those experiencing these delays or missed opportunities would experience minor to moderate adverse effects. Because these opportunities would continue to be available to most visitors, overall adverse effects would be limited (minor).

Because permits would continue to be required for placing bolts on rocks, it is likely that some of these would be approved and some denied, resulting in minor adverse effects on visitor access to sport climbing in some areas. Successful route proposals are often those that do not require new trail construction, that stage on rock, and that do not affect or have few impacts on other visitors.

Ongoing negligible to moderate adverse effects coupled with long-term beneficial effects would probably continue to impact visitor access to camping. During the peak season (mid-May through mid-October), visitors would probably continue to need to reserve campsites well in advance for weekend camping. In addition, reservations are often also necessary on weekdays in June. Currently campsites at Smoky Mountain are frequently available but are more expensive and tailored to recreational vehicles and equestrians. Expansion of Smoky Mountain Campground would increase the number of recreational vehicle sites; however, as with the current campground, these could also be used by tent campers. Existing dispersed camping opportunities (free or low-cost) would probably also continue to be available on adjacent BLM lands. Although Reserve campsites can be reserved up to nine months in advance, it is possible that some visitors, such as those from other areas, would be unaware of the need to reserve sites and could be disproportionately affected by use during the peak season, a minor to moderate adverse effect depending on whether these visitors were able to find other nearby overnight accommodations.

There would also continue to be some minor to moderate adverse impacts from visitor use conflicts associated with parking along the main roadway and from day use of campsites. Because many of the day-use areas and trailheads are located adjacent to campsites, occasional conflicts between day and overnight visitors would continue to impact visitor access. These conflicts include competition for parking during peak periods, day-use visitors walking through campsites to access trails, and day-use visitors picnicking in campsites.

Alternative A would continue to offer a wide range of climbing opportunities, including sport and traditional climbing and single- and multi-pitch climbs ranging in difficulty from 5.16 to 5.13. Although these opportunities would continue to be available and, in general, are widely dispersed throughout the Reserve, during the peak season some climbers would continue to experience long delays for the most

popular routes, a minor to moderate localized adverse effect. This is especially true because most climbing routes are located less than one-half mile from trailheads (Reserve 1998a). For instance, queuing at staging areas has become frequent in several key locations, such as at Bath and Elephant rocks. There would also continue to be some restrictions on visitor access in alternative A. The Twin Sisters rock formation would continue to be closed to climbing, and the Research Natural Area would continue to be used primarily by researchers, although the Research Natural Area would remain open to the public, including for climbers using existing climbing routes and trails.

An update of the climbing management plan would have both long-term beneficial and negligible to minor adverse effects on climbing access, because there could be changes in how visitors reach climbing areas if needed to protect resources. Under alternative A, existing areas open to climbing, including technical climbing and scrambling, would probably continue to be available. However, restoration of duplicate access paths or large staging areas would probably be proposed. Similarly, areas proposed for restoration under a vegetation management plan could be temporarily closed to visitor access.

Ongoing work with the Idaho Department of Fish and Game to manage hunting and trapping within the Reserve at current levels could continue to affect locations where these activities occurred, a long-term negligible to minor adverse effect. During hunting season, it is also likely that some visitors would continue to be deterred from visiting, a seasonal short-term minor adverse effect. The potential number of people deterred from visiting during hunting season, however, is small in comparison to the number of hunters that visit during this time.

There would probably continue to be a perceived adverse effect from continuing to manage the 312-acre Research Natural Area under alternative A, associated with access to grazing opportunities. Although grazing has been and would continue to be prohibited in the

Research Natural Area, there is a portion of one grazing allotment that overlaps the boundary, where the land is actually too steep for grazing to occur. In addition, because the Research Natural Area is not fenced and topographic boundaries do not align with the section boundary, there are other portions of it that have probably unknowingly been used for trespass grazing.

Because some of the lands within the Reserve would remain private, and existing uses on these private lands would continue, there would continue to be some places that visitors could not access at all or could not access without permission of the private landowner (such as for hunting). Because these contain large portions of the California Trail as well as other resources, there would continue to be long-term negligible to moderate adverse effects, depending on visitor desire to access these areas. Managing the combination of public and private lands within the Reserve would also continue to pose a challenge, especially regarding issues of access, fencing, and signing.

Grazing within existing allotments on Reserve lands and periodic trailing of livestock through Reserve lands to get to grazing allotments could both deter some visitors from accessing some areas and result in delays for visitors in getting from one area to another on roads or trails through the Reserve. Access to some areas could also be affected by the presence of fences and gates associated with livestock grazing. Visitors deterred from visiting areas because of grazing livestock would experience long-term minor to moderate adverse effects on access, while visitors delayed by livestock trailing would experience short-term negligible to minor adverse effects on access and transportation.

National scenic byway designation, if it occurred, could increase visitation from placement of highway signs and travel marketing, though this would be similar to the current Idaho scenic byway designation. Depending on visitation to the Reserve, effects could be beneficial or adverse, with potential for increasing competition for parking and camping during the peak or shoulder seasons.

Updating the trails management plan to consider new trail connections to areas outside the Reserve, such as to Independence Lake or Castle Rocks State Park, would expand visitor access to these areas, a long-term beneficial effect.

Although the current boundary of the Reserve is well established, it would continue to be difficult to access some areas within the Reserve not located along main roads—particularly those areas adjacent to other public land with no established routes or trails providing access, a negligible to minor adverse effect on visitors who prefer to explore areas of the Reserve away from the main roadways. Although parking along roadways within the Reserve is somewhat limited by their narrow width and few turnouts, visitors can access these areas via cross-country hikes.

ALTERNATIVE B IMPACTS

Impacts associated with ongoing activities and proposed plans would be similar to alternative A, except in alternative B, the existing visitor center in its 19th-century house could be reconfigured, instead of constructing a new visitor facility. As a result, impacts would be the same as in alternative A without the new visitor center. Over time, however, it is likely that there would be an increasing focus on online interpretation and resources in this alternative, an effect that could benefit some visitors and make access more difficult for others. In general, proposed actions in alternative B would have minor beneficial effects by improving visitor access to the Reserve or services as described below.

There would be long-term beneficial effects on visitor access from reconfiguration of the Reserve campsites via the recommendations in the Rim development concept plan. The proposal calls for no net loss of campsites, and as a result the actual number of sites would remain the same. Actions would include modifying campsites and trailheads to minimize conflicts between day use and overnight visitors (such as by relocating trailheads or campsites) and to improve the camping experience for overnight visitors. Parking issues would also be addressed, in part, by the Rim development

concept plan. Proposed actions are based on reducing existing user conflicts, safety and maintenance issues and resource concerns, and improving parking, toilet access, and circulation as well as offering more and/or separating picnicking and camping. Because there is limited access and parking located at certain trailheads, the development concept plan would initiate parking lot redesign recommendations that could lead to designation of parking spaces or development of small new parking areas where appropriate. Under the development concept plan, closure of some campsites would allow for day-use parking near trailheads, while new campsite construction would compensate for the loss of those campsites closed.

As in alternative A, the availability of camping both within and outside the Reserve, as well as the proposed expansion of Smoky Mountain Campground to accommodate an additional camping area, would continue to provide long-term beneficial impacts on access for some overnight visitors. In alternative B campground expansion could include a new group site and/or a small tent camping area could also be provided. As a result, access benefits would be extended to a greater variety of overnight visitors. Because a new visitor center would not be constructed, the addition of an amphitheater at Smoky Mountain could also improve access to Reserve programming for visitors. A designated site for this activity (instead of using an unoccupied campsite) would probably draw more visitors both because it would be a better location for the activity and because it would improve advertising for the availability of programs.

Similar to alternative A, there would continue to be some restrictions on visitor access. Areas that would continue to be affected would include climbing associated with the Twin Sisters and access to private lands. In addition, in this and other action alternatives, permits to bolt climbing routes would not be issued for the Research Natural Area or California Trail Zones, which could be perceived as a minor long-term adverse effect.

There would also probably continue to be perceived restrictions during hunting/trapping seasons from some visitors who may voluntarily avoid the affected areas or use seasons. Similarly there could be perceived effects associated with permitted grazing on allotments within the Reserve associated with those visitors who did not feel comfortable traversing areas where livestock were present. Over time, modifying some of these grazing allotments could have long-term beneficial effects on improving visitor access, especially where nonhistoric fences were removed.

Updating the climbing management plan would have both long-term beneficial and negligible to minor adverse effects on visitor access to climbing, from likely changes to visitor access of current climbing areas. Based on zoning changes in alternative B, there could be some modifications to existing areas open to climbing, including sport or traditional climbing and scrambling, with improved access in some areas and restricted access in others. For instance, although current climbing routes could continue to be used, there would be no additional bolted routes established in either the Research Natural Area or the California Trail zones. The preliminary boundary identified for the California Trail Zone was modified to allow access to climbing routes, where it inadvertently excluded key climbing areas because of the scale of the map used to draw the boundaries.

Implementing boundary modifications to the Research Natural Area to conform to terrain features would have long-term beneficial effects on visitor access from increasing the clarity of Reserve boundaries on the ground, resulting in fewer incidences of trespass grazing because of unidentifiable allotment and Reserve boundaries.

Potential use of fire to manage Reserve vegetation could result in short-term negligible to minor adverse impacts on visitor access during fire management activities, including from smoke and firefighting activities.

Development of an equestrian staging area near the Bread Loaves intersection or in another

area would expand access to the west side of the Reserve for trail riding. Constructing a turnaround at the north end of Logger Springs Road at Indian Grove Overlook would also improve visitor access and safety in this area, a long-term beneficial effect.

An expansion of the existing Research Natural Area would improve opportunities for visitors to explore an area of southern Idaho in its natural condition with few human impacts, a long-term beneficial effect.

In contrast to alternative A, alternative B would expand youth and public programming outside the Reserve, thereby increasing access to the Reserve for nonvisitors, a long-term beneficial effect.

ALTERNATIVE C IMPACTS

Similar to alternative B, ongoing management of visitor access and transportation would occur as outlined in alternative A. This would include general access to the Reserve and its facilities and access within the Reserve associated with grazing allotments, private lands, and hunting seasons. In addition, improvements associated with the expansion of the Research Natural Area, implementation of the Rim development concept plan, creation of trails, climbing and vegetation management plans, and construction of an amphitheater would also be similar to or the same as in alternative B. Access differences in alternative C would primarily result from a new visitor center facility, different changes to Smoky Mountain Campground, construction of an outdoor learning center, proposed expansion of the Reserve boundary, and changes in management zoning.

Similar to alternative A, if a new visitor use facility was constructed near the entrance to the Reserve on land transferred from the Bureau of Land Management to the National Park Service, additional long-term beneficial effects on visitor access would result from the variety of indoor and outdoor exhibits and new visitor use opportunities staged outside of the building. Outdoor exhibits would also offer new access opportunities. As in alternative

A, the new facility would also improve access and visitor connectivity, because it would be larger than the crowded 19th-century house currently functioning as a visitor center, and an amphitheater and outdoor learning center would further improve access to Reserve information and programming.

Construction of an amphitheater would be similar to alternative B; however, the outdoor learning center would create new access opportunities, primarily for younger visitors, researchers, and those in groups. As in other alternatives, these youth activities could potentially have long-term indirect beneficial impacts on access by increasing the likelihood that families of participants would visit the Reserve.

Because alternative C would include a potential boundary expansion that would envelop current BLM-managed lands adjacent to Smoky Mountain Campground used by climbers and others for dispersed camping, and because it is likely that the Idaho Department of Parks and Recreation would disband or charge a fee for similar camping there or elsewhere within Smoky Mountain, there could be long-term negligible to minor adverse effects on access for some visitors accustomed to free camping. However, it is likely that this activity would move elsewhere on BLM-managed lands.

Development of a trail to the summit of Smoky Mountain would have long-term minor beneficial effects on visitor access from providing another visitor use opportunity integrating the Reserve with the campground. It would also improve access for tribal members to gather pinyon pine nuts, a long-term beneficial effect.

As in alternative B, boundary modifications to the Research Natural Area to conform to terrain features would have long-term beneficial effects on visitor access by making it easier to identify the RNA boundary, thereby potentially reducing incidences of trespass grazing that have occurred in the past because of the unfenced boundary, although if the boundary remained unfenced, there would probably continue to be

trespass grazing. With time, access could also improve to parts of the Reserve now in grazing allotments, if allotments were reduced through voluntary grazing buyouts.

As in alternatives A and B, the availability of camping both within and outside the Reserve, as well as the proposed expansion of Smoky Mountain Campground, would continue to provide long-term beneficial impacts on access for some overnight visitors. Similar to alternative B, the expansion of Smoky Mountain Campground would benefit a variety of overnight visitors, including those who camp using recreational vehicles, those who tent camp, and potentially also those who prefer to stay in a more social walk-in tent camping area.

Modifying the current array of zones in alternative C would improve access to climbing routes, especially in the vicinity of the California Trail Zone. As in alternative B, no new bolted or partly bolted climbing routes would be established in the Research Natural Area or California Trail Zones, a minor long-term adverse effect on access for climbers.

Pending boundary expansion legislation by Congress, some federal lands now managed by the Bureau of Land Management could be administratively transferred within the Department of the Interior from the Bureau of Land Management to the National Park Service. This would have indirect and direct long-term beneficial effects on access by allowing for the development of a visitor facility (see above) within the modified Reserve, which would improve off-hour visitor information (and therefore access) through outdoor exhibits. Boundary expansion would also expand the protected areas of the Reserve by closing currently managed BLM lands to mining and other consumptive uses, which could be perceived as a beneficial or adverse effect by visitors on access and transportation.

ALTERNATIVE D IMPACTS

Similar to alternatives B and C, ongoing management of visitor access and transportation would occur as outlined in alternative A. Among the actions in alternative C would include general access to the Reserve and its facilities and access within the Reserve associated with grazing allotments, private lands, a new trail to the summit of Smoky Mountain, and actions associated with hunting and trapping seasons. In addition, improvements associated with the expansion of the Research Natural Area, implementation of the Rim development concept plan, creation of trails, climbing and vegetation management plans, and construction of an amphitheater would also be similar to or the same as in alternative B. Access differences in alternative D would primarily result from a much larger visitor center facility, Smoky Mountain Campground modifications, proposed expansion of the Reserve boundary, and changes in management zoning.

As in alternatives A and C, a new visitor use facility would result in additional long-term beneficial effects on visitor access because of an increased variety of indoor and outdoor exhibits, as well as new visitor use opportunities that could be staged out of the facility. Outdoor exhibits would also offer new access opportunities. As in alternative A, the new facility would improve access because it would be larger than the current visitor center. Although no amphitheater would be constructed, as with alternative A the visitor center facility would have a theater and a multipurpose room that could be used for programs.

Similar to alternatives B and C, boundary modifications to the Research Natural Area that conform to terrain features would have long-term beneficial effects on visitor access by making it easier to identify Reserve boundaries, thereby reducing the incidence of trespass grazing due to the unfenced boundary. As in alternatives B and C, there would be no new climbing routes in the Research Natural Area or California Trail Zones, a minor long-term adverse effect.

As with alternatives A–C, the availability of camping both within and outside the Reserve, as well as the proposed expansion of Smoky Mountain Campground, would continue to provide long-term beneficial impacts on access for some overnight visitors. In alternative D, the expansion of Smoky Mountain Campground would emphasize providing more tent sites.

As in alternative C, pending boundary expansion legislation by Congress, some federal lands now managed by the Bureau of Land Management would be administratively transferred within the Department of the Interior from the Bureau of Land Management to the National Park Service. This could have indirect and direct long-term beneficial effects on access within the Reserve by enabling development of a visitor center facility that would improve off-hours visitor information (and therefore access) from outdoor exhibits and expand protected areas within the Reserve.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on visitor experience (as appropriate to the alternative) would include:

- Monitor the number of complaints related to day and overnight visitor conflicts. If more than three complaints occurred per day, over time management strategies could increase staff presence to guide visitors to appropriate locations, updated maps, and increased education about day- and overnight-use designations.
- Monitor and manage the number of vehicles parked in undesignated areas to gain a better understanding of damage to vegetation and soils, minimize safety hazards, reduce crowding and visual impacts on the City of Rocks Back Country Byway, and to ensure compliance with parking regulations.
- Work with Cassia County to manage undesignated parking along Cassia County roads. If necessary, the National Park Service would determine if additional parking is needed outside of the county right-of-way.

- Monitor the number of vehicles in undesignated areas during peak-use days (such as weekends and holidays) following the Cassia County transportation study and parking area redesign. No vehicles would be allowed to overflow from the designated parking areas onto Reserve roads. On county roads, no more than three vehicles could exceed designated parking areas. If these numbers were surpassed, management strategies for county roads could include increased work with county officials and public education. Additional management strategies for Reserve roads include educating partners, installing temporary signs, adding parking bumpers to clearly designate parking spaces, increasing available parking where appropriate, and issuing parking citations if necessary.
- Increase education about the importance of staying on trails if the number of social trails emanating from visitor use areas rises above a monitoring standard.
- Employ appropriate preventative measures to reduce the number of social trails, such as increasing signage about trails, creating natural barriers and erosion control measures, brushing out areas, closing off areas if needed, and formalizing trails.
- Provide improved pre-trip information for the Reserve and for nearby camping facilities.
- Encourage camping during nonpeak times such as mid-week.
- Place informative signs at the entrance, fee stations, or at the visitor center when the campsites are full.
- Monitor the number of groups waiting in line for climbing routes to ensure that visitors are having high-quality experiences and that resources are not being damaged by high-intensity use.
- Encourage climbers to wait for climbs in existing disturbed areas, or provide information about similar routes in other areas of the Reserve.
- Rove climbing areas to encourage dispersed use on similar climbing routes in various areas of the Reserve.
- Continue to manage climbing routes to avoid impacts on natural and cultural resources, including nesting birds and archeological sites.

CUMULATIVE IMPACTS

Over time, visitors and residents have experienced ongoing improvements (minor to moderate cumulative beneficial effects) in access to the Reserve from county and Reserve roads and from development of visitor facilities. For instance, compared to 1988 when the Reserve was established, information, services, and a variety of visitor use areas and opportunities are accessible. Compared to 1996 when the comprehensive management plan was approved, there is better access to camping. Access to an array of recreational opportunities has also expanded through management of the Reserve; however, its popularity has resulted in some minor cumulative adverse effects on access to both sport and traditional climbing opportunities, because of lines that form during the peak season for popular climbs. Similarly, there is often competition for campsites within the Reserve during the peak season because these may be filled by reservations and are therefore unavailable to campers used to the first-come, first-served policy. There are also times during the peak season when it is difficult to find a parking space in one of the many day-use areas. This is especially true because most climbing routes are located within a half-mile of trailheads. Therefore accessibility to climbing areas would continue to result in the mingling of climbers with other types of visitors, resulting in competition for some of the same access points (Reserve 1998a).

Past actions include construction of Reserve roads, fences, gates, and visitor facilities, (including remodeling a 19th-century house in Almo to function as a visitor center), installation of kiosks, waysides, and other informational and directional signs to and within the Reserve, creation of campsites within and outside the Reserve, and a variety of other actions that

have improved access and transportation, such as construction and maintenance of hiker, equestrian, and bicycle trails. Past actions also include loss of climbing opportunities in the Castle Rocks Interagency Recreation Area when the Bureau of Land Management closed this area (June 2005) because of a potential adverse effect on archeological resources. Past actions include closure of the Twin Sisters to climbing, a long-term minor to moderate adverse effect. Based on resource management plans for adjacent IDPR-, BLM-, and USFS-managed lands, however, past planning has also expanded access to recreational opportunities, including climbing in the area surrounding the Reserve, such as in Castle Rocks State Park.

New route development has decreased from approximately 300 new climbs in the late 1980s, to fewer than 10 per year between 1990 and 1998, to approximately 5 or fewer in recent years (Reserve 1998a: p. 29; Bastis pers. comm. 2012). Although epoxy-modified holds are prohibited, the Reserve estimated in 1991 that approximately 2% of climbing routes in City of Rocks were reported to contain deliberately modified holds (Reserve 1998a: p. 29).

Present actions include ongoing management of visitor facilities combined with maintenance of roads, trails, and exhibits, as well as actions by the Bureau of Land Management and U.S. Forest Service to manage primitive and dispersed camping outside the Reserve.

Future actions would include the proposals associated with the alternatives in this GMP, as well as ongoing planning by the Bureau of Land Management to determine the future management of the Castle Rocks Interagency Recreation Area based on cultural resources and tribal interests.

According to the “Draft National Climate Assessment,” extreme heat events that threaten public health will probably be more frequent and intense in coming decades. Warmer summers and extreme heat events could deter some visitation during the peak summer months and require innovative park designs (e.g., shade structures and/or alternative water supplies)

to meet new environmental conditions and visitor needs. At the same time, there could be an increase in wildfire frequency and intensity as warming continues. This could degrade park air quality and viewsheds and attract visitors to parks or close portions of parks for lengthy periods.

When actions in alternative A are added to the effects of other past, present, and future actions, there would continue to be a range of minor to moderate cumulative adverse effects on visitor access and transportation, coupled with a range of minor cumulative beneficial effects. When actions in alternatives B–D are added to the effects of other past, present, and future actions, there would be similar cumulative adverse effects. However, there would be fewer cumulative adverse effects compared to alternative A. In addition, the range of beneficial effects would be greater (minor to moderate), due to new and expanded access to Reserve information and recreational opportunities. Because of the boundary expansion and implementation of the Rim development concept plan, these beneficial effects would probably be greatest in alternatives C and D and least in alternative B, followed by alternative A.

CONCLUSION

All alternatives would continue to provide access to the Reserve and to a variety of services and opportunities within it. Permitted activities such as hunting/trapping and grazing would continue to have negligible to minor adverse and beneficial effects on access. Minor to moderate individualized adverse effects from visitors unable to access day-use parking or trailheads would continue to occur in alternative A. Similarly there would continue to be both beneficial and adverse impacts associated with access to climbing opportunities. As with the other alternatives, however, alternative A would also expand access to some visitor use opportunities. In alternatives B–D, improvements associated with the Rim development concept plan would expand access and provide minor to moderate beneficial effects for some visitors. In alternatives C and D, boundary modification would provide

access to some new and expanded areas and visitor use opportunities, including more efficient management of the Reserve and a better understanding of the juxtaposition of lands for visitors, a long-term minor to moderate beneficial effect.

Impacts on Visitor Experience: Visitor Use Opportunities

ALTERNATIVE A IMPACTS

Although there would be no new visitor use opportunities in alternative A, some current activities would be enhanced. In addition, the following visitor use opportunities would continue to be provided: hiking; camping within and outside the Reserve; horseback riding; mountain biking; sport (technical) and traditional climbing; hunting; trapping; and learning about the Reserve through various activities, such as wildlife or wildflower viewing, drive-through touring, viewing wayside exhibits, and/or taking part in ranger programs, including day, evening, and youth programs (both on- and off-site). In addition, permitted activities such as grazing and commercial uses (such as commercial guides and outfitters) would also continue. Combined, this wide range of activities would continue to have long-term moderate beneficial effects on visitor use opportunities.

Alternative A would also expand opportunities for camping (from development of more campsites at Smoky Mountain) and for learning about Reserve resources (from potential development of a new visitor center facility as proposed in the comprehensive management plan and Castle Rocks master plan). These expanded activities would enhance the Reserve visitor experience by alleviating some of the problems associated with access to these opportunities. If implemented, the expanded visitor center would offer a variety of new ways to experience the Reserve, including new exhibits, a theater for the orientation film, outdoor exhibits, and spaces that could potentially be used by educational groups. Sport climbing routes could also be expanded within City of Rocks to the extent that these were proposed and approved by the Reserve based on

an assessment of potential impacts. Currently, as many as five new routes are generally approved each year, though this number could increase or decrease, dependent on the number of applicants and the content of the proposals.

Ongoing monitoring and research related to Reserve resources, including air quality, soundscapes, night sky, wildlife, and vegetation, would continue and would provide new opportunities for visitors to learn about these resources as available information increased.

In alternative A, as in the other alternatives, visitors and local communities would be offered the opportunity to participate in several planning efforts associated with various activities occurring in the Reserve. These planning efforts include a climbing management plan, vegetation management plan, fire management plan, and grazing management plan. This would result in a series of short-term beneficial effects on visitor use opportunities, coupled with potential long-term impacts from influencing Reserve operations.

ALTERNATIVE B–D IMPACTS

Impacts associated with alternatives B–D would be the same as identified in alternative A. In addition, there would be a new equestrian staging facility near the Bread Loaves intersection that would improve opportunities for trail riding on the west side of the Reserve, a long-term beneficial effect for equestrian user groups.

In addition to a trail linking California Trail resources, there would be expanded opportunities to link the Reserve to outside areas through trails developed in partnership with adjoining public land managers.

Reconfiguration of campsites and parking areas along the Rim, according to Rim DCP recommendations, would better delineate visitor use opportunities in the Reserve and would improve separation of day and overnight use, offering minor to moderate short- and long-term beneficial effects.

In general, construction projects could temporarily diminish wildlife presence and therefore viewing opportunities in the vicinity of construction sites, causing negligible to minor short-term impacts.

Further identification of viewsheds important to both California Trail emigrants and Reserve visitors could engender additional protection for these through sensitive siting of new facilities, a long-term beneficial effect.

In addition to learning about resources based on ongoing inventory and monitoring programs as in alternative A, there would be new visitor use opportunities to learn about soundscapes, night skies, and air quality, because there would be greater focus on these resources through increased monitoring and development of night sky and soundscape management plans. A variety of educational and arts opportunities would also expand visitor use options at the Reserve, a long-term beneficial effect.

With the slight (alternatives B and D) to moderate (alternative C) expansion of the Research Natural Area, there would be improved opportunities for visitors to explore an area of southern Idaho in its natural condition with few human impacts. Although a better understanding of the boundary of the Research Natural Area would occur from the slight expansion proposed in alternatives B and D, the larger expansion included in alternative C would also offer greater opportunities for research. Minor adverse effects associated with expansion of the Research Natural Area would include a slightly reduced area open to hunting.

ADDITIONAL IMPACTS FROM ALTERNATIVE B

Alternative B would emphasize self-directed exploration of the Reserve, supported by additional waysides and unstaffed kiosks. Although there would be no new visitor center facility, remodeling of the existing 19th-century structure could improve visitor opportunities to hear the orientation film and to obtain information with fewer distractions.

New camping opportunities at Smoky Mountain would offer a variety of sites, including tent and social camping. This could help to relieve pressure when campsites in the Reserve are full.

Alternative B would also emphasize outreach programs and the incorporation of neighboring community and tribal perspectives in learning opportunities. Youth activities would include wilderness and self-empowering experiences, and establish connections to the arts and local communities.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

In addition to new opportunities identified above in alternative B, alternative C would offer new programs for youth and adults at the outdoor learning center and encouragement for a commercial shuttle between the Reserve and Castle Rocks State Park. As in alternative A, there would be expanded opportunities for camping, hiking and learning about Reserve resources at a new visitor center facility.

The new camping opportunities could also emphasize social walk-in tent camping opportunities for groups and individuals. This would be important because existing dispersed camping directly adjacent to some parts of the Reserve could be reduced closer to the Reserve if nearby BLM lands became part of the Reserve. Nonetheless, there would continue to be free dispersed camping on nearby BLM- and USFS-managed land. With the expansion, existing dispersed camping on BLM lands could be formalized with sanitation facilities, picnic tables, and fire rings. Expansion of camping, including social camping opportunities, could compensate for the minor adverse impact associated with the loss of some dispersed camping outside the Reserve and would provide minor to moderate long-term beneficial effects for some overnight visitors.

New hiking opportunities would include a trail to the summit of Smoky Mountain and trail connections to outside areas, as well as a trail for better exploration of California Trail resources (as in alternative B). This latter trail would also

be open to bicyclists and equestrians and would allow for a nonvehicular experience of some of the California Trail resources, such as the inscription rocks, a long-term beneficial impact for some visitors.

In addition to expanding research opportunities as noted above for alternatives B–D, alternative C would also focus on establishing partnerships with others to conduct research and monitoring and would invite researchers to share information directly with the public through programming. This would include visitors participating in stewardship activities and researchers sharing their experiences through articles, presentations, classes, lectures, field trips, and site field work. It would also include partnerships with federal, state, tribal, and private entities, such as universities and institutes. In addition, the outdoor learning center would provide classes, field trips, and programs tailored to youth. Programs would focus on research about Reserve resources and would strive to connect people, nature, and community through science, art, and the hands-on study of natural and cultural history. These learning opportunities could also be provided by commercial and private nonprofit organizations. Combined, there would be a variety of new visitor use opportunities, with both short- and long-term beneficial effects.

ADDITIONAL IMPACTS FROM ALTERNATIVE D

Alternative D emphasizes experiential learning through involvement in activities such as ranching. Actual tasks or staged events would provide a wide range of new visitor use opportunities. This expansion would allow visitors some participation in the widespread grazing that occurs on public and private lands within the Reserve. Alternative D would also feature increased opportunities for visitors to participate in gathering information about resources, through assistance to researchers and others working in the City of Rocks.

As in alternative A, there would be expanded opportunities for camping, hiking, and learning about Reserve resources at a new visitor center

facility. The facility in this alternative would be the largest and would therefore probably provide a wider range of information and services that could better accommodate large groups.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on visitor use opportunities are identified above under “Access and Transportation.”

CUMULATIVE IMPACTS

Within the Reserve, past actions include the establishment of a visitor center outside the Reserve in Almo; a variety of interpretive and educational programming; 64 campsites; 32 recreational vehicle campsites; and 6 equestrian campsites outside the Reserve, including 2 yurts. There are more than 600 identified climbing routes within the Reserve, including technical and sport climbs. The Reserve includes nearly 20 miles of roads, 9 day use parking areas and 8 pull-out parking areas, and more than 23 miles of hiking trails. In addition there are picnic areas, 11 wayside exhibits, 9 bulletin boards, hundreds of signs, 15 different publications, 2 websites, and 2 Facebook pages that provide visitor opportunities to experience the City of Rocks. These structures and visitor use areas have contributed a range of minor to moderate cumulative adverse and beneficial effects.

Outside the Reserve, the Bureau of Land Management has closed climbing routes in the Castle Rocks Interagency Recreation Area and has decided against expanding camping and trails in the area. (Cultural resources claimed by the Shoshone-Bannock and Shoshone-Paiute tribes exist in the area frequented by climbers.) Nearby Castle Rocks State Park has created a small lodge rental facility. Castle Rocks State Park also contains approximately 250 climbing routes, 12 miles of trails, and 1.1 miles of road. Numerous opportunities exist for dispersed and primitive camping on nearby BLM and USFS lands, as well as nine private campgrounds in the vicinity of the Reserve (most of which do not provide nearby opportunities for small groups to tent camp).

Ongoing management—including maintenance of recreational facilities by the National Park Service, Idaho Department of Parks and Recreation, Bureau of Land Management, and U.S. Forest Service, as well as Cassia County, which owns and maintains approximately 10 miles of roads in the Reserve—contributes a range of cumulative beneficial and adverse effects depending on the visitor.

The future actions identified by the alternatives in this plan include establishing up to 62 additional campsites/camping areas (all alternatives). These would be located outside of the Reserve in alternatives A and B and within it in alternatives C and D if boundary expansion is approved by Congress. Campsites would also be reconfigured within the Reserve campground, and day-use parking and picnicking would expand (alternatives B–D). Cooperative arrangements with Cassia County could result in improvements to the county road corridor in all alternatives.

When actions in alternatives A, B, and D are added to the effects of other past, present, and future actions, there would continue to be minor to moderate beneficial effects. Similarly, when actions in alternative C are added to the effects of other past, present, and future actions, there would be moderate beneficial effects.

CONCLUSION

Alternative A would continue to provide a full range of visitor use opportunities, including expansion of some activities (such as camping, hiking, and visitor interpretive and educational experiences if a new visitor center was constructed). Alternatives B–D would also increase visitor use opportunities, but to a greater degree than alternative A. Expanded opportunities proposed in alternatives B, C, and D include new equestrian facilities, improved camping within the Reserve, and more integration between Reserve research and interpretation. Because alternative C would also contain new opportunities associated with an outdoor learning center, it would contribute the greatest beneficial effects, followed by alternative D with its emphasis on experiential learning, with lesser benefits offered by alternatives A or B.

Impacts on Visitor Experience: Interpretation and Education

ALTERNATIVE A IMPACTS

Visitor interpretation and education would continue to be enhanced through ongoing emphasis on maintaining Reserve resources. Similarly, continuing to provide interpretive and educational opportunities at the visitor center and through existing programs, waysides, kiosks, brochures, special events, and the internet would continue to have long-term beneficial effects by inspiring and educating visitors to learn about and protect Reserve resources.

Reserve interpretive and educational programs would continue to foster enjoyment and appreciation of natural, cultural, and recreational resources. By educating the public, the Reserve would continue to engender support for operations. Interpretive programs would continue to be provided for a range of different user groups, ages, and abilities. Combined these would continue to produce minor to moderate beneficial effects.

A long-term beneficial effect would continue to result from the Reserve's unique effort to integrate climbing management and interpretive responsibilities, including coordination of permits to bolt new climbing routes, maintenance of bolts, and presentation of climbing-related talks and demonstrations.

Reserve staff is also responsible for the same activities at Castle Rocks State Park, and because of this there would probably continue to be actions associated with both, causing occasional confusion on the part of staff and visitors, a negligible to minor adverse effect.

Visitors would generally continue to be on their own to discover and learn about Reserve resources, except for information provided at the small administrative headquarters/visitor center outside the Reserve, through existing interpretive programming, and at a variety of other information sources, such as wayside exhibits and kiosks within the Reserve. Outside the Reserve, the existing visitor center

would continue to provide brochures, maps, educational gifts, and other items related to the resources within City of Rocks.

Partnerships with nonprofit, environmental, and educational organizations would continue to have long-term beneficial effects on interpretation and education, inspiring visitors to protect Reserve resources.

Long-term beneficial effects on visitor interpretation and education would also result from interpretive programs and special events facilitated or conducted by Reserve staff. To the extent that interpretive opportunities are presented, there could be long-term beneficial effects from interpreting some of the lesser-known aspects of the Reserve, such as mining, homesteading, ranching, or American Indian use. Similarly, educational opportunities (such as Junior Ranger programs and the Youth Conservation Corps) for youth, pending available staff and funding, would continue to contribute long-term beneficial effects by inspiring the next generation of Reserve visitors to protect not only Reserve resources but NPS and park resources across the country.

ALTERNATIVE B IMPACTS

In addition to long-term beneficial effects from ongoing interpretive and educational programming, there would be additional long-term beneficial effects from an increased array of self-guided and self-directed programs and opportunities. These would include expansion of written and electronic guides and other materials available to visitors. Because this alternative also calls for a more individualized, self-reliant Reserve experience, less emphasis would be placed on staff-guided interpretive programs and talks. Depending on the type of visitor and their expectations, this could result in long-term beneficial or adverse effects. Although some visitors would seek out these new self-guided opportunities, other visitors could experience a decrease in interpretive and learning opportunities at the Reserve because they would not take advantage of self-guided experiences.

Similarly, because some visitors do not stop at the visitor center, additional kiosks within the Reserve, such as at Smoky Mountain Campground, could improve visitor understanding of Reserve resources. Because there would be a greater emphasis on visitors obtaining information prior to arrival through electronic or other means, less interpretive programming in the Reserve could result in some very informed visitors (who have educated themselves prior to visiting the Reserve) as well as some visitors who could not or would not take advantage of these pre-visit opportunities and would arrive at the Reserve without this knowledge. In either case, additional information at the existing (but reorganized and slightly expanded) visitor center could facilitate visitor interpretation and education, a long-term beneficial effect. Wireless access is available at Smoky Mountain Campground and in Almo. Visitors can also access the web while they are in town to learn more about what they saw during their visit.

Continuing to provide some interpretive programming within the Reserve would, as in alternative A, have a long-term beneficial effect by improving visitor understanding, use, and protection of Reserve resources. Compared to alternative A, interpretive programming could include more incorporation of tribal perspectives and opportunities for Reserve neighbors to tell their own stories in the Reserve, benefiting visitor education and interpretation by offering a broader understanding of the influence and importance of City of Rocks.

Although fewer programs and interpretive opportunities would be available within the Reserve, an extended outreach program for schools and educational organizations could inspire more students to visit and to learn about Reserve resources. Combining this with development of a new long-range interpretive plan could result in new opportunities for visitors to learn about Reserve resources, an indirect long-term beneficial effect on visitor experience associated with education and interpretation.

New programs, such as an artist-in-residence program, would bring educational opportunities to the Reserve and local community through partnerships with outside entities to encourage self-expression and connection to City of Rocks using art, photography, and writing. Long-term beneficial effects would arise from encouraging development of new interpretive and educational programming to improve visitor experiences.

As in alternative A, the current emphasis on youth opportunities would continue, but could be expanded to include new opportunities to learn about Reserve resources through combined educational and wilderness or climbing experiences.

ALTERNATIVE C IMPACTS

In addition to existing visitor educational and interpretive opportunities in alternative A, long-term beneficial effects would result from increasing understanding of the Reserve's relevance and role in the Basin and Range ecosystem. As in alternative A, there would be a new, albeit smaller, visitor center facility. Unlike alternative A, however, this alternative proposes a new outdoor learning center focused on providing expanded educational opportunities, primarily for youth but also for other groups, providing expanded beneficial effects for these visitors. As in alternative B, the new long-range interpretive plan could expand interpretive and educational opportunities for visitors, a long-term beneficial effect.

In addition to new interpretive programming associated with the outdoor learning center, beneficial effects would arise from new topics for guided walks and talks and immersive interpretive experiences in the Reserve's natural and cultural environment. This formal and informal programming might feature stewardship activities and articles, presentations, classes, lectures, and field trips led by researchers using the Reserve as a study area. These types of activities could also be provided by other educational and nonprofit organizations or affiliated tribes. In addition, educational and interpretive programs would

integrate learning with research and could highlight new information about archeological resources as well as other cultural and natural resources.

As in alternative A, youth opportunities (such as Junior Ranger programs and the Youth Conservation Corps), pending available staff and funding, would continue to contribute long-term beneficial effects by inspiring the next generation of Reserve visitors to protect Reserve resources. In addition, long-term beneficial effects would be contributed through programming provided at the outdoor learning center, including programs based on research being conducted at the Reserve.

ALTERNATIVE D IMPACTS

In alternative D, the emphasis on experiential learning associated with natural and cultural resources would guide visitor interpretation and educational programs. Enhanced onsite programs would probably feature staff, partners, and volunteers conducting a variety of living history and costumed interpretive programs to help visitors understand the actual experiences of California Trail emigrants and settlers in the Almo valley, as well as current ranching activities. Ongoing presentations of a variety of traditional programs, such as nature hikes, geology field schools, and others would also continue. As a result of the emphasis on living history and costumed interpretation, there would probably be more special events, such as commemorations. Commercial interpretive programs and fee interpretation programs (offering more in-depth experiences) could also be provided. Combined, these would enhance Reserve educational and interpretive experiences for visitors and improve outreach to youth, as well as local and regional visitors, a long-term beneficial effect.

As in other alternatives, the long-range interpretive plan would be revised to emphasize themes developed as part of the Reserve's foundation statement, and programs for youth and new visitors would be expanded to engage visitors in citizen stewardship and day-to-day Reserve operations, as well as to offer new

experiences through Parks as Classrooms programming or an introduction to climbing or wilderness experiences through partner youth education programs, such as more climbing or environmental education schools. These activities would expand the current interpretive programming offered under alternative A to engage new audiences and groups, a long-term beneficial effect.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on visitor interpretation and education are identified above under “Access and Transportation.”

CUMULATIVE IMPACTS

Over time there have been changes in both the number of programs and the diversity of interpretive and educational programming, and specific programs targeted to new audiences have been implemented within the Reserve, resulting in a range of minor to moderate beneficial and adverse cumulative effects. Programs are based on interpretive themes developed for the Reserve and are related to the significance of the Reserve’s natural and cultural resources and recreational activities.

Past actions include establishment of a cooperating association for the Reserve, production of an orientation film, and design and installation of wayside exhibits. These and other interpretive program development efforts serve nearly 100,000 annual visitors. There are opportunities for schoolchildren through partnerships with local schools, including programs at schools and in the Reserve, as well as Junior Ranger programs. City of Rocks also currently offers a variety of special activities, from interpretive horseback rides to snowshoe bird walks, as well as a wide range of regular interpretive programs (such as walks and talks) for day and overnight visitors.

Present interpretive programs include winter and summer day camps for kids, wildflower and birding weekends, summer and fall trail rides, climbing workshops, stargazing parties,

snowshoe hikes, and more. There are also two websites, bulletin boards and signs, and a wide range of interpretive publications, including a Reserve newspaper, bird checklist, self-guided trail brochures, and others.

Future actions would include additional interpretive program development as identified in the alternatives, including in-depth information on night sky and soundscapes, based on research that would take place within the Reserve under all alternatives. Alternative C would include connections to interpretive opportunities offered by partners and a proposed outdoor learning center that would offer day and overnight programming, primarily for educational and nonprofit organizations targeted to youth. Alternative D would also expand onsite interpretive programming through its emphasis on experiential learning.

The Reserve’s unique biological composition (as a biogeographic crossroads) provides opportunities for climate change research, including regarding plant and wildlife migrations, invasive species trends, visitor use trends, and changes in hydrologic patterns in streams, springs and wetlands. Some of this research could be applied to advanced interpretive opportunities for visitors on how the Reserve’s ecosystem is influenced by a changing climate (Weeks 2014).

When the actions in alternative A are added to past, present, and future actions, minor to moderate cumulative beneficial impacts would continue. When the impacts of alternatives B–D are added to past, present, and future actions, there would continue to be minor cumulative beneficial impacts under alternative B, moderate cumulative beneficial impacts under alternative C, and moderate cumulative impacts under alternative D.

CONCLUSION

Alternatives A–D would continue to have minor to moderate long-term beneficial impacts on interpretation and education. Compared to alternative A, alternative B would probably offer fewer interpretive and educational programs,

while alternatives C and D would expand interpretive programming in different ways. Beneficial impacts would probably be greatest in alternative C, followed by alternatives D, A, and B.

Impacts on Visitor Experience: Visitor and Employee Safety

ALTERNATIVE A IMPACTS

Equipment use: Ongoing actions that may pose manageable risks to human health and safety include equipment operation, gas-powered hand tool operation, and manual hand tool operation. Exposure to fuels and lubricants may pose health and safety risks, and exposure to herbicides or other chemicals is also a health concern. Health and safety risks are managed through administrative controls (for example controls formed through Reserve policy and state and federal law) and engineering controls (such as back-up alarms on heavy equipment and personal protective equipment).

Although equipment would be used per existing safety procedures, its presence could be a potential hazard to visitors if they inadvertently or purposefully entered areas where it was being used. Because there would be safety observers or other precautions taken during equipment use in visitor use areas and because materials and supplies would be stored where visitors would not access them, no or negligible impacts would occur.

Hazardous materials use: The Reserve would continue to follow existing safety and hazardous materials procedures and recordkeeping. Ongoing use of small quantities of hazardous materials, such as herbicides, gasoline and diesel fuel, oil, and antifreeze would continue. Standard operating procedures and policies derived from the Comprehensive Environmental Response, Compensation, and Liability Act, the Resource Conservation and Recovery Act, and other applicable federal laws would continue to be followed and would continue to minimize potential adverse effects on employee and visitor safety.

Small amounts of hazardous materials, such as herbicides, would also continue to be purchased and stored at the Reserve. Personal protective equipment, such as gloves, masks, and coveralls or long sleeves and pants, would be used to minimize the potential for both immediate and chronic exposure for employees as recommended by chemical labeling or material safety data sheets. Specific training regarding some materials, such as herbicides, would also continue to be used, and employees working with hazardous materials would receive routine training in their use and application and in hazard communications and spill response.

Use of hazardous materials, such as some herbicides, may require the temporary closure of treated areas to protect visitors during and after treatment, such as while the herbicide dries, for example. As a result, visitor access could be restricted from some areas on some days. While actions would have short-term adverse impacts on visitor access and enjoyment, they would be combined with short- and long-term beneficial impacts on visitor safety.

Overall impacts on employees from potential hazards associated with ongoing Reserve operations would be negligible to minor. If spills or improper handling of hazardous materials occurred or appropriate procedures were not followed, impacts could be moderate.

Road use: Cassia County would continue to maintain county roads through the Reserve for visitor use, taking into consideration visitor safety and enjoyment. Beneficial effects would occur from the Reserve encouraging Cassia County to maintain the roads consistent with the Reserve setting, including signs and information, and addressing safety issues through consultation. Adverse effects could occur because the roads are narrow and winding and because the applicable county speed limit (55 mph unless otherwise posted) exceeds what is sometimes safe on the roads. As a result, there would continue to be potential minor to moderate short- and long-term adverse impacts on visitor and employee safety. In addition to safety hazards posed by vehicles parked along roadways, some visitors have expressed

concern that driving conditions are unsafe. This perception could be related to a variety of factors such as speed of vehicles; people walking, horseback riding, and biking on roadways with vehicles; a mix of vehicles on the road, including all-terrain vehicles (these are allowed only on county and not Reserve roads); and blind corners. Even when people are driving within the speed limit, the driving conditions may still seem unsafe, especially to visitors who are not used to driving at speeds as high as 55 mph on unpaved roads.

Cassia County Sheriff's Office data for 2009–11 show the following: 17 incidents with reports, 9 citations, and 14 traffic stops. There have also been 4 accidents reported since 2002. The proposed Cassia County transportation study to determine the number of vehicles and their speed in the Reserve should improve knowledge of potential effects and make recommendations about other appropriate improvements, such as changing speed limits.

Camping: A variety of potential safety issues would continue to be associated with the Rim campsites in alternative A. Among those identified by the Rim development concept plan are that campsites along the main road often make it necessary to back cars up into traffic, including near vegetation that may affect sight distance. Some fire grates are also too close to surrounding vegetation, and combined campground and day use in some areas leads to limited parking access. In addition, the development concept plan cites many pedestrian-vehicle safety conflicts, some hazards associated with walking surfaces (including stairs and trails), one or two incidences of broken handrails, and several instances where visitors need to walk along a narrow roadway with poor visibility to access the closest vault toilet. Until these safety concerns are corrected, there would continue to be potential for short-term minor to moderate adverse effects on employee and visitor safety.

Climbing: Climbing would continue to be an inherently risky activity. This risk would continue to be mitigated by educational information regarding climbing safety

and equipment. As noted in the climbing management plan, however, the National Park Service and the Idaho Department of Parks and Recreation recognize that climbers bear the sole responsibility for their own safety while climbing (Reserve 1998a). City of Rocks does not judge or physically control safety related to rock climbing, rock climbing equipment, or conditions on climbing routes within Reserve boundaries. The Reserve does have the authority to close areas to the public based on identified hazardous conditions. Between 2004 and 2008, 19 visitor injuries were documented, 9 of which were serious. All of the serious visitor injuries were climbing-related. With approximately 50,000 climbers annually visiting the Reserve and Castle Rocks State Park, this accident rate of less than 0.01% per year is relatively low. According to the business plan, this safety record may be attributed to closely spaced bolt anchors, short climbs, and solid rock (Reserve 2010b: p. 26–27). The business plan also notes that nearby climbers will often assist a noncritically injured or stranded climber without summoning more formal first responders. Therefore, it is likely that the number of accidents documented is lower than the actual number that occur. This is also true nationally for other climbing areas.

Other visitor use: A variety of other visitor activities can be inherently risky, including hiking, mountain bicycling, and horseback riding. Although the Reserve would continue to maintain facilities and equipment for these uses, occasional incidents would continue to occur and would be associated with provided facilities and equipment, causing the potential for both short- and long-term negligible to moderate adverse impacts. In addition, there would continue to be a potential for adverse impacts on occur from wildlife-human interactions, caused by inappropriate visitor or unpredictable wildlife behavior, a long-term negligible to moderate localized adverse effect.

Dogs: Because dogs are allowed on leash at the Reserve, in campgrounds as well as on trails, they may cause potential negligible to minor adverse impacts on employee and visitor safety when pet owners do not follow posted

regulations. Problems can include dogs off-leash, fighting, biting, and digging depressions in climber staging areas.

Human waste: Because vault toilets and restrooms in the Reserve are often widely spaced, especially from some campsites, there have been incidences of improperly disposed human waste and toilet paper. Although disposal practices have improved, there would probably continue to be a potential for minor adverse impacts pending additional visitor education and placement of additional vault toilets.

Visitor center: In the short-term, negligible adverse impacts would continue from maintaining a small visitor center in a century-old house that serves approximately 10,000 to 12,000 visitors per year. Small crowded rooms, a narrow second floor that does not meet accessibility standards, and the general configuration of the current building impede the ability of visitors and staff to concentrate on the film and day-to-day activities. If the visitor center facility called for by the comprehensive management plan and Castle Rocks master plan is constructed, however, long-term beneficial impacts would occur from improving these conditions.

ALTERNATIVE B–D IMPACTS

Impacts would be similar to alternative A; however, long-term beneficial improvements to employee safety would occur due to more effective implementation of a wider variety of mitigation measures to limit impacts on Reserve resources. In addition, alternative actions would include the potential for fire use, working with Cassia County to improve county road management and use, and modifications to the Reserve campsites to minimize impacts associated with day and overnight parking.

Fire use: Including fire use as a management option would also result in minor adverse impacts. Employees who work with fires receive specific training and equipment. As a result, there are identified procedures associated with fire use, including burning and mop-up that would continue to be followed and formally implemented and/or changed as conditions

warrant. Fire use could also result in the need for visitor use closures in some areas for a few days to a few weeks. Although these actions would have short-term minor adverse impacts on visitor access and enjoyment, they would be combined with short- and long-term beneficial impacts on visitor safety.

Roads: Working with Cassia County to lower speed limits along county roads within the Reserve could have long-term beneficial impacts on visitor experience and safety. Many visitors walk alongside the county road between campsites, on the way to trailheads, or while recreating. Improving the Logger Springs Road by constructing a turnaround in alternatives B–D would also have long-term beneficial effects; however, beneficial impacts would be greatest in alternative D from also providing parking in this area.

Parking: By monitoring and managing the number of vehicles parked in undesignated areas, the Reserve could also minimize safety hazards, including crowding associated with undesignated parking, a long-term beneficial effect.

DCP parking lot redesign recommendations could also improve parking conditions to accommodate more vehicles and thereby reduce unsafe, undesignated parking. In addition, monitoring the number of vehicles in undesignated areas during peak-use days (on weekends and holidays) could lead to identification of the need for more or improvements to designated parking areas. Although county roads would continue to allow overflow parking, Reserve roads would continue to prohibit this.

Visitor center: Reconfiguration of the visitor center in alternative B and new construction of a visitor facility in alternatives A, C, and D could improve visitor safety associated with existing visitor center operations, a long-term beneficial impact from improving accessibility and minimizing distractions. These impacts would probably be more beneficial in alternatives A, C, and D than in alternative B. If the Idaho Department of Parks and Recreation decided

to construct the visitor center in alternative B, impacts would probably be the same as in alternative A.

Boundary expansion: With the proposed boundary expansion in alternatives C–D, dispersed camping on former BLM lands would probably be modified to include sanitation facilities, picnic tables, and fire rings, as well as a proposed bivouac (social camping) area. Visitor safety would probably increase, a long-term minor to moderate beneficial effect.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Additional measures to minimize impacts on visitor safety are also identified above under “Access and Transportation.”

- Monitor the perception of unsafe conditions by tallying the number of complaints received on NPS- and county-owned roads. If conditions approach identified standards on county roads, Reserve staff would contact the county sheriff’s office for support. If conditions approach standards on NPS-owned roads, a variety of management actions could occur, including an increase in education to better inform visitors about regulations, increasing Reserve vehicle/staff presence, posting speed limits in problem areas, and issuing citations.
- Correct employee safety concerns as they are identified.
- Conduct job hazard analyses prior to taking on each new task and as identified tasks were implemented.
- Increase awareness of how to access vault toilets, provide education on Leave No Trace principles, and add new vault toilets where needed, as appropriate.
- Collaborate with the county to manage parking and to educate visitors about appropriate designated parking.
- Manage unsafe parking by educating partners, installing temporary signs, adding parking bumpers to clearly designate parking spaces, increasing available parking where appropriate, and issuing citations if necessary.
- Monitor and maintain bolts to enhance visitor safety, satisfaction, and resource protection.
- Improve resource protection by replacing bolts with stainless steel hardware, removing slings, and camouflaging hardware with paint.

Measures specific to herbicide use:

- Close areas treated with herbicides to visitor use during the formal “no entry” period specified on the label or until dry.
- Consult weather predictions prior to using herbicides to minimize the potential for herbicide drift and to ensure effectiveness and application according to label-recommended temperature, precipitation and wind conditions.
- Do not apply herbicides to areas with excessive dew.
- Irrigate treated areas according to the label.
- Do not leave small equipment and containers such as backpack sprayers and herbicide jugs containing herbicide unattended (to prevent theft, tampering, or accidental exposure).
- Label and store herbicides according to manufacturer’s recommendations and NPS policies.
- Use herbicides with low toxicity and few or no human and wildlife health hazards.
- Ensure that herbicide use and storage is in accordance with NPS regional and/or national Integrated Pest Management Coordinator approval and NPS policies.

CUMULATIVE IMPACTS

There have been no cumulative adverse impacts on human health and safety from past and present actions and none are anticipated from future actions. Minor cumulative beneficial effects in improving human health and safety would result from actions in alternatives B–D. Although there would be no cumulative adverse effects on human health and safety, there is the potential that, according to the “Draft National Climate Assessment,” the frequency of extreme precipitation events is projected to increase and these could contribute to flooding and associated potential health and safety risks from degraded water quality and flash floods.

CONCLUSION

There would generally continue to be a potential for negligible to minor adverse effects on human health and safety. If appropriate procedures were not followed, these could be moderate. Alternatives B–D would have potential long-term beneficial effects on human health and safety from improving safety issues associated with parking, driving, and camping within the Reserve. The turnaround with parking in alternative D would offer more beneficial effects on visitor safety than would the turnaround alone in alternatives B and C.

Impacts on Visitor Experience: Scenic Resources

Background

The enabling legislation for the Reserve calls for the protection of scenic quality. As a result, three inventories of scenic viewsheds have been completed. One, a visual resource analysis, was completed for the comprehensive management plan in 1990. The second inventory was part of the National Register of Historic Places nomination for the California Trail (NPS 1966), which described scenic resources as a contributing characteristic (NPS 2008a). The last occurred as part of the development of this general management plan. (See “Chapter 4: Affected Environment” for a description of these.)

The comprehensive management plan identified 8 views of a possible 24 as superior (1: Indian Grove, 2: Taylor’s Pasture Overlook, 3: Bath Rock/Turtle Rock/Parking Lot Rocks view to City, 4: from Emery Pass, and 5: to Emery Pass) or excellent quality (6: Circle Creek Basin, 7: Pinnacle Pass North, and 8: Circle Creek Overlook). As noted in the comprehensive management plan, the first 5 demonstrate the vivid alpine character of the Great Basin geomorphic region of the Reserve, while the remaining 2 are distinctly different and embody the best of the Snake River Plain geomorphic region (Reserve 1996a: p. 117).

The national register nomination text identified the area within the foreground of the California Trail and up to 0.25 miles on either side as important, along with the middle ground (0.25 to 3.0 miles). Although the area beyond this is also important, specific components within it are generally not discernible from the trail. Three other views and viewsheds were important to the emigrants:

- The view south toward Twin Sisters from the California Trail corridor as the ground rises into the basin in front of the two spires
- The view northwest toward Twin Sisters along the Salt Lake Alternate Trail at the stage stop
- The expansive, open view southwest to Granite Pass, which is located one-quarter mile outside the southwest boundary of the Reserve

See “Landscape Settings and Viewsheds” section in chapter 4 and figure 23.

The first view is directed to the focal point at the two spires, but their dominance is mitigated by the intermediate crags and peaks along the Twin Sisters ridge and the considerable distance. Yet the view remains important because it reveals the trail route to Pinnacle Pass, and the lowest saddle along the ridge.

The second significant view is of the Twin Sisters looking northwest from the Kelton-Boise stage station site. From this vantage, the separation of the two spires is apparent. Their individual and distinctive forms and textures are vividly perceived. Their strength as a dominant focal point is more evident in the shortened middle ground that makes them appear close to the viewer.

The third view extends beyond the boundary of the Reserve to Granite Pass. It is expansive and open with no foreground or containment. A symbol of westward expansion and passage, it is an important focal point from the Reserve, despite its object (Granite Pass) outside the Reserve.

ALTERNATIVE A–D IMPACTS

As noted in the comprehensive management plan, impacts on scenic quality can occur from poor air quality, loss of solitude in the viewing experience, and loss of naturalness associated with the view (Reserve 1996a: p. 150).

Overall, the effects of zoning would enhance views associated with the California Trail by protecting, at a minimum, the foreground views of the California Trail (0.25 miles on either side, as proposed in alternatives C and D); protecting some middle ground views (0.25 to 3.0 miles on either side, as proposed in alternative C; and to a much lesser extent, alternative D); or expanding protection to include a wider area through the adjacent Natural or Historic Preservation Zones (alternative B). Under alternatives B–D, all of the viewsheds identified in the NHL nomination would be protected. Alternative A would also confer protection on the 0.25-mile foreground view; however, based on continued research, current management has also protected additional areas identified as significant (figure 23).

Indian Grove (View 1): There would be no effect on this viewpoint under alternative A. Under alternatives B and C, a turnaround would be developed in this area to improve safety so that visitors accessing the turnout can turn around without backing down this steep

narrow road or without continuing to drive for some distance onto USFS land beyond the Reserve boundary until the road is wide enough and sight distance available to turn around. Under alternative D, this turnaround would be enhanced with designated parking and wayside exhibit(s). Because the improvements identified for this area (the turnaround in alternatives B and C and the parking area in alternative D) would be designed to avoid impacts on the viewpoint, and are, in fact, located behind it and down a small rise, there would be no adverse effects on this view in alternatives B–D. Instead, there would be minor to moderate long-term beneficial effects from improving safety and access associated with it.

Views 2–6, 8: There would be no effect on these views from actions proposed in alternatives A–D.

Pinnacle Pass North (View 7): This viewpoint is located on private land looking north toward Pinnacle Pass. As a result, actions could occur on the private land where this viewpoint is located. Depending on the actions, a range of adverse impacts could occur that are currently unforeseeable. Although no known plans exist that would affect this view, future plans would be subject to the provisions of the Cassia County Historic Preservation Zone and its location within the Reserve.

Impacts on the 17 views identified for this general management plan (see “Chapter 4: Affected Environment”) are described below:

View 1) Smoky Mountain Drive: There would continue to be signs of human activity, including the abandoned house and barn and modern house and barn. Although this view is partially protected by the Cassia County Historical Preservation Ordinance, additional construction could occur in areas that are not protected. If the visitor center was constructed at this location as proposed in alternatives A, C, and D, long-term beneficial effects could result from developing this viewpoint and identifying its significance for visitors.

View 2) East Entrance Reserve Sign: The reclamation of a former borrow pit in the foreground of this view would continue to have ongoing negligible to minor adverse impacts, caused by sparse plants and a sense of disturbance associated with the recovery. Over time, these impacts would diminish and minor long-term beneficial effects would ensue. Other aspects of the view would remain unaffected.

View 3) Circle Creek Overlook and View 4) Almo Valley: Access to this area has recently been improved with the construction of two small connected parking areas, instead of the haphazard parking arrangement that previously existed. As a result, the approach to this view appears disturbed, however, the view of the basin is unaffected and easier access has resulted in minor long-term beneficial effects.

View 5) Camp Rock and View 6) Treasure Rock: These viewpoints, which contain waysides interpreting the California emigrant experience, would not be affected by the proposed plan.

View 7) Cave Rock/Campsite 15: This viewpoint into the Inner City would not be affected by the proposed plan. Under alternatives B–D, no improvements are proposed for this campsite associated with the Rim development concept plan. Because this viewpoint is generally only accessible to those on Practice Rock or those camped at one of the adjacent campsites, it is unlikely to be observed by most visitors.

View 8) Look-out Rock/Campsite 22: Although an interpretive sign identifies this viewpoint, opportunities to experience this view would continue to be difficult: the campsite would remain under alternative A, and the confined area and nearby campsite parking would restrict ease of access. Under alternatives B–D, and based on recommendations in the Rim development concept plan, the campsite would be removed in favor of accommodating existing day use. The parking area would be reconfigured to allow better access to the overlook, and the Reserve would consider adding a vault toilet that could be used both by day-use visitors and nearby campers.

View 9) Bath Rock/Campsites 42–43: Under alternative A, there is no interpretive sign to identify this viewpoint, which is probably enjoyed by campers using sites 40–44, as well as by hikers who venture toward the rocks beyond the parking area. Under alternative A, it is likely that few visitors would experience this viewpoint. Under alternatives B–D, pending implementation of the Rim DCP recommendations, this area (including campsites 40–44) would be converted to a day-use picnic area. An accessible trail could potentially be signed and/or improved to allow more visitors to take advantage of this viewpoint in the heart of the Reserve.

View 10) Morning Glory Spire/Campsites 51–52: This popular pullout with a wayside exhibit encourages visitors to stop to look at the view, which includes climbers attempting a variety of nearby routes. This view would continue to be available under all alternatives. In addition, campsites 51 and 52 would close and the pullout area where these campsites are located across the road would be enhanced under alternatives B–D if the recommendations in the Rim development concept plan are implemented. The campsites are not close enough to a vault toilet and therefore often contain human waste impacts. These campsites are also currently impacting an aspen grove and are adjacent to a solar array/well and an historic corral that could additionally be interpreted.

View 11) Emery Pass Picnic Area: This viewpoint would not be affected by the proposed plan.

View 12) Finger Rock/Campsite 63: This viewpoint would not be affected under alternative A. Under alternatives B–D, the Rim development concept plan calls for the addition of several campsites to this area and for development of the overlook into this area. Long-term beneficial effects would occur from facilitating visitor access to these views, including access for those not using the nearby campsites. As noted in the Rim DCP recommendations, the exceptional views, existing parking, and the minimal day use in this remote location of the Reserve support the mix of overnight and day use.

View 13) Campsite 64 Bend: This viewpoint would not be affected under alternative A. Under alternatives B–D, the Rim development concept plan calls for campsite 64 to be converted to a small group site. Although there would be more use in this area, it would be concentrated at the end of the access road to this site.

View 14) Indian Grove: Impacts would be the same as noted above for Indian Grove (comprehensive management plan view 1).

View 15) Hansen Hill (also Pinnacle Pass North, comprehensive management plan View 7): As noted above, the comprehensive management plan-identified viewpoint of this area (Pinnacle Pass North) would not be affected by the proposed plan. It could, however, be affected by actions on private land. In contrast the Hansen Hill viewpoint, which provides access to the Pinnacle Pass view from within the Reserve, would not be affected by actions proposed in this plan.

View 16) Emigrant Canyon: This viewpoint, developed to highlight Emigrant Canyon, contains two waysides and would not be affected by the actions proposed in this plan. Minor long-term beneficial effects would continue to occur from facilitating visitor access to this viewpoint under all alternatives.

View 17) Granite Pass: This was one of the most important views from the California Trail and was associated with the national register nomination for the national historic trail. It includes a wayside depicting how it would have appeared during the period of significance for the City of Rocks National Historic Landmark. It would not be affected by the actions proposed in this plan. Minor long-term beneficial effects would continue to occur from facilitating visitor access to this viewpoint under all alternatives. Minor long-term adverse effects would continue to occur due to the visibility of a quarry yard with modern housing, including some 19th-century log structures visible outside of the Reserve boundary. From the wayside exhibit at the viewpoint, these nonconforming elements are screened by the low, unnamed hill to the left (south). Potential future cumulative impacts that threaten this view include proposed electric transmission lines and wind turbines.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on scenic resources would include:

- Work with Cassia County to implement the Cassia County Historic Preservation Zone and design guidelines.
- Design additional development to minimize impacts on the viewshed(s).
- Identify and enhance opportunities for visitors to experience these viewsheds where possible.

CUMULATIVE IMPACTS

Through Public Law 100-696, Congress directed the Secretary of the Interior “to protect and maintain scenic quality” at City of Rocks. As noted in “Chapter 4: Affected Environment,” the 1973 suitability/feasibility study for a proposed City of Rocks National Monument observed that:

Although present use has considerably changed the regional landscape since the days of covered wagons, vast open plains and unusual geologic formations still exist in the City of Rocks area. The contrast of the beautiful mountain formations and the flat, arid Raft River Plains produces the same effect on people—whether they are pioneers traveling by covered wagon in the 1840s–1860s or tourists crossing southern Idaho in the 20th century. The visual impact of the scenery remains: as one crosses the flat, monotonous sagebrush grazing-range, there is the sudden, startling contrast of those amazing rocks on the horizon, clustered in a city-like formation (NPS 1973: p. 15).

The views noted in that study and by the emigrants on the California Trail are still available today. Although homesteading, farming, ranching, and other uses occurred after the emigrants passed through, the views that they recorded in their journals can still be experienced. In addition, other scenic views have emerged with the construction of additional roads through the Reserve. Although

the views are generally the same, and with few exceptions do not contain intrusions associated with later development, some of these views have also changed with the passage of time and the continuing presence of people on the land. Most of these changes are subtle and associated with altered vegetation patterns wrought by farming and ranching. These would not be evident to most visitors. Indeed, many have recognized the unique nature and significance of this largely unchanged landscape: the City of Rocks area was officially identified for these qualities prior to its establishment as a Reserve through the following designations and documentation:

- California Trail National Historic Landmark designation (1966)
- City of Rocks National Natural Landmark designation (1973)
- NPS Special Resource Study (1976)
- Establishment of the Research Natural Area by the Bureau of Land Management (1985 Cassia Resource Management Plan and 1987 USFS Sawtooth National Forest Land and Resource Management Plan)
- City of Rocks National Reserve designation (1988)
- Cassia County Historical Preservation Zone (1993)
- Castle Rocks State Park (August 21, 2003)

As a result, past actions have highlighted the significance of the Reserve's scenic qualities for future generations, a long-term beneficial effect.

Present actions include continuing to manage these areas in accordance with their established significance and enhancing opportunities for preservation of the area's natural and cultural resources. The ongoing focus on establishing major visitor facilities outside the Reserve, combined with establishing appropriate visitor facilities within the Reserve, has also had a long-term beneficial effect on preserving these scenic views.

Future actions would also contribute minor to moderate long-term beneficial effects on the preservation of scenic resources, where jurisdiction and/or authority exist. These actions include ongoing review of existing visitor use facilities and viewpoints inside the Reserve and development of alternatives that avoid impacts on some resources through the GMP process and development of the Rim development concept plan. If nearby development proposals associated with the Granite Pass viewshed occurred (for example, installation of transmission lines or wind turbines), there would be localized moderate to major cumulative adverse impacts.

When actions in alternative A are added to the localized minor to moderate adverse effects of past actions, the mostly beneficial effects associated with present actions, and the current minor to moderate beneficial effects of future actions, there would be cumulative negligible to minor beneficial effects on scenic resources within the Reserve. If development proposals were implemented in the future within the viewshed, such as the one toward Granite Pass, however, there would be localized moderate to major cumulative adverse effects. Similarly, impacts associated with alternatives B–D would also have minor cumulative beneficial effects when combined with the localized effects of past actions. Cumulative beneficial effects would be enhanced in alternatives B–D primarily because of the proposed implementation of the Rim DCP recommendations and GMP zoning, which in several cases would enhance identified scenic views for visitors and which would expand protection through zoning by establishing a California Trail Zone.

CONCLUSION

Alternative A would have negligible to minor long-term beneficial effects on scenic viewsheds. Alternatives B–D would have minor to moderate localized long-term beneficial effects on scenic viewsheds.

PARK OPERATIONS AND PARTNERSHIPS

Impacts on Park Operations and Partnerships

Impact Intensity

Negligible	Park operations and partnerships would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on Reserve operations.
Minor	The effects on park operations and partnerships would be detectable and would be of a magnitude that would not have an appreciable effect on park operations.
Moderate	The effects on park operations and partnerships would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public.
Major	The effects on park operations and partnerships would be readily apparent, would result in a substantial change in park operations in a manner noticeable to staff and the public, and would be markedly different from existing operations.

ALTERNATIVE A IMPACTS

There would continue to be negligible to moderate adverse and beneficial effects on park operations and partnerships from ongoing management and administration of the Reserve, including for maintenance of buildings, roads, parking areas, campgrounds, fences, gates, and trails; interpretation, including both public programming and maintaining structures, such as wayside exhibits; cultural and natural resources management; and management of other visitor use facilities, such as trail signs, picnic areas, and vault toilets. The Reserve maintains approximately 10 miles of roads, 102 campsites, 3 group sites, 14 parking areas, more than 1,800 signs, 13 buildings, 13 vault toilets, 18 vehicles, 22 pieces of special-use equipment, a utility system, 7 wells, and 3 acres of landscaping (Reserve 2010b: p. 28).

Reserve staff would also continue to create and deliver public programs, conduct inventories of cultural and natural resources, maintain buildings, assist visitors, manage campgrounds and the visitor center, administer grazing permits and climbing, and generally conduct all of the day-to-day activities it takes to run the Reserve.

Funding is allocated across five divisions—Integrated (Natural and Cultural) Resource Management, Visitor Services and Interpretation, Climbing Management and Compliance, Maintenance and Operations, and Management and Administration—and is used primarily for staff salaries and some operations. During day-to-day operations, Reserve staff would also maintain the NPS and IDPR partnership through the existing cooperative agreement. The cooperative agreement between the National Park Service and the Idaho Department of Parks and Recreation allows for flexibility in assigning appropriate state or federal authorities to various day-to-day operations. The National Park Service brings more stringent standards of natural and cultural resource management and national recognition, while the Idaho Department of Parks and Recreation provides a local face to government, simplified administrative processes, personnel, and an emphasis on visitor services and recreation. Resource sharing between the Idaho Department of Parks and Recreation and the National Park Service for the Reserve and Castle Rocks State Park results in long-term beneficial impacts for both agencies. For example, when Castle Rocks State Park was established, management staff levels remained nearly constant despite the overall complexity of the arrangement and the increase in managed land. In addition, the joint use of a shared visitor center and maintenance and operations division enables a lower capital outlay than if the Reserve and Castle Rocks State Park were managed separately (Reserve 2010b: p. 9).

Reserve staff would also continue to maintain a variety of agreements with other individuals and agencies within and outside the Reserve and initiate and maintain partnerships with other state, federal, county, and nonprofit

organizations. Staff would also continue to work with private landowners within and outside the Reserve on issues of mutual concern. This ongoing partnership would result in long-term negligible to minor adverse (from staff time and costs) and beneficial effects from actions taken to maintain good community relationships and from new or expanded opportunities for cooperative management actions.

The Reserve would also continue to work with Cassia County to maintain jurisdictional roads within City of Rocks, a long-term beneficial and minor adverse effect. Effects would be beneficial because of the county's continued financial responsibility for road maintenance, while adverse effects would continue to occur from staff time to coordinate with the county to ensure management to NPS/IDPR road standards.

Ongoing inventory and monitoring of Reserve resources by the NPS UCBN I&M program would have minor to moderate long-term beneficial effects on park operations and partnerships. Inventory and monitoring would advance understanding of Reserve resources, leading to improvements in management, but the programs would also result in minor adverse effects, because of the additional staff time required for implementation. The internal focus would ensure systematic collection of knowledge and the ability to detect change in the condition of Reserve resources.

Minor to moderate long-term beneficial effects and negligible to minor adverse effects on park operations and partnerships would continue to occur with active management of Reserve resources, including conducting resource projects, inventories, and monitoring for communities that are not meeting desired conditions. Long-term ecological monitoring programs coupled with inventories and resource projects would improve Reserve understanding of resources over time.

Maintaining, administering, and staffing the existing array of facilities and conducting the same or a similar array of programs would continue to be primary activities for Reserve

staff. This would include retaining maintenance, operations, and housing at the Castle Rocks Administrative Unit. Construction of a new visitor facility could require additional staff or could allow for expansion of current staff into a larger area. Because the new facility would be located a few miles from the current facility (closer to the Reserve), it would increase travel time for some staff and would also probably increase the number of trips current staff would make to administer Reserve operations from the administrative/maintenance area, a minor long-term adverse effect. The new facility could also improve visitor understanding of and protection for Reserve resources, an indirect negligible to minor long-term beneficial effect on Reserve operations from potential reduction in impacts on Reserve resources. Long-term beneficial effects would also result from improving staff facilities, either by construction of new offices in the new visitor center or by expansion of existing offices in the current visitor center. Similarly, the *Castle Rocks State Park Master Plan* and the Reserve's 1996 comprehensive management plan called for expanding Smoky Mountain Campground to its original build-out of 100 sites. Because 38 of these have been constructed, there could be up to another 62 sites: maintenance and administration of additional campsites would lead to long-term minor adverse effects on park operations.

In addition to maintaining current operations and facilities, Reserve staff often has several projects (including many with one-time funding) to administer or implement. Under alternative A, these would include an inventory of night sky resources and soundscapes, reducing reflective light within the Reserve, crafting or implementing a variety of management plans, and using these planning processes or implementation opportunities to make better decisions about resource protection within the Reserve. Other projects would also include working with a private landowner to survey and document the Kelton-Boise stage station, conducting archeological inventory and protection actions for the California Trail, and rehabilitating the Circle Creek impoundment.

Enabling access for climbers would continue to be managed according to natural and cultural resource considerations. For example, where climbing routes are proposed, new trail alignments would take into consideration access paths that would avoid the development of social trails; and these would be monitored to limit staging area impacts; limit impacts on wildlife, such as nesting raptors; and avoid impacts on cultural resources (Reserve 2010b: p. 9–10).

Maintaining the current fire management program, including suppression of all wildfires, would continue to include reliance on interagency agreements and fire management expertise, as well as dependence on Reserve staff, who would manage initial incidents and conduct hazard fuel reduction and other day-to-day activities. Incident-related activities would probably continue to be conducted by other agency staff and through nationwide fire incident management operations. Over time, because the natural fire regime has been altered and because a full suppression program would not return the natural role of fire to the ecosystem, fires within the Reserve could cover a wider area and could be more difficult to control, resulting in greater costs to implement protection of Reserve facilities and resources unable to withstand fire, a long-term minor to moderate adverse effect.

ALTERNATIVE B IMPACTS

As in alternative A, negligible to moderate adverse and negligible to moderate beneficial effects on park operations and partnerships would continue from ongoing management and administration of the Reserve using the NPS and IDPR cooperative agreement, as well as partnerships with other agencies and organizations. As in alternative A, managing the Reserve's natural and cultural resources would result in minor to moderate long-term beneficial effects and negligible to minor adverse effects on park operations and partnerships.

Differences in alternative B would primarily result from:

- focusing on self-directed and wilderness-type visitor experiences with additional unstaffed kiosks, wayside exhibits, and signs
- retaining the current visitor center in the same location and remodeling it, rather than constructing another visitor facility
- constructing an amphitheater at Smoky Mountain Campground, along with an additional camping area
- constructing a new equestrian staging area near the Bread Loaves intersection or in another location within the Reserve
- constructing a vehicle turnaround at Indian Grove
- expanding the fire management program to include the opportunity to work with partners to use prescribed fire
- partnering with other agencies to expand the trail system within and outside the Reserve
- improving the Reserve campsites, parking areas, trailheads, and other associated facilities based on the recommendations in the Rim development concept plan

Combined, these actions would require additional staffing (approximately three new positions) and expanded responsibilities for current staff to plan for, maintain, and administer new facilities, a minor to moderate long-term adverse effect. There could also be beneficial effects from reducing the need for management operations (such as providing more self-guided interpretation in the Reserve); avoiding duplication of efforts by Reserve partners and cooperating organizations (such as for fire and trails management); and reducing visitor use impacts (from changes suggested by the Rim development concept plan).

Specific partnership opportunities would be sought to maintain or jointly manage the county road through the Reserve (an action that could improve management of the road but would increase Reserve responsibilities); to develop trail linkages to areas outside the Reserve; and to implement curriculum outreach to schools.

In addition to impacts from maintaining current operations and facilities and conducting the one-time projects identified in alternative A, one-time and short-term actions in alternative B would include the expansion of educational curriculum, self-guided, and pre-visit interpretive materials; the creation of a long-range interpretive plan; additional cultural resource inventory and preservation work; and the development of an archeological management plan and a soundscape management plan. Administering these activities would require additional staff time, resulting in additional short-term adverse impacts on park operations and partnerships while simultaneously resulting in more informed decision-making related to resource preservation in the Reserve, a direct or indirect long-term beneficial effect. Maintaining a terrain-defined boundary for the Research Natural Area would also improve management efficiency. Eliminating grazing from riparian areas and from the California Trail and Visitor Facilities and Access Zones could have short-term adverse impacts on park operations because of increased labor needs for restoration. Nevertheless, long-term beneficial effects would result from minimizing the need for future long-term management of these areas.

In addition to fire management impacts noted in alternative A, using prescribed fire to benefit fire-dependent plant communities could have long-term beneficial effects by reducing costs associated with managing potentially more extensive wildfires in the Reserve.

ALTERNATIVE C IMPACTS

Impacts and actions in alternative C would be similar to alternative B: both negligible to moderate adverse and beneficial effects would occur from maintaining existing park operations and partnerships. Differences in alternative C, compared to alternative B, would primarily result from:

- expanding the interpretive program to include an outdoor learning center/ amphitheater at Smoky Mountain Campground
- constructing a new visitor center, similar to but smaller than in alternative A
- establishing a grazing buyout program
- expanding the Reserve boundary

As in alternative B, these actions would combine to produce minor to moderate long-term adverse and minor to moderate long-term beneficial effects on park operations and partnerships by requiring more staff (approximately five new positions) and increasing responsibilities for current staff, while improving opportunities for efficient management and partnerships in the region by expanding opportunities and the influence of the Reserve. Additional beneficial effects would be conferred by improvements in partnerships with the UCBN I&M program and other federal, state, tribal, and private partners to promote an ecosystem management approach within the Reserve and on surrounding public lands. Partnerships, if implemented, could lead to greater communication and cooperation and regional ecosystem preservation actions.

The partnership opportunities identified in alternative B would be expanded in alternative C. As in alternative B, adverse effects would arise from additional management actions and responsibilities, while beneficial effects could include new opportunities or partnerships that would reduce direct management needs. Some actions that the National Park Service would ordinarily undertake on its own could be conducted with partners, thereby limiting the number of staff and the direct costs required for implementation.

Currently, the boundary of the Reserve and of the Smoky Mountain lease are difficult to fence, sign, and communicate to visitors and agency personnel because the jurisdictional boundaries (along topographic map section lines) contain steep slopes and right angles over rugged mountain terrain. Including this area within the Reserve boundary would therefore result in

long-term beneficial effects on park operations. Combined, there would be both short- and long-term adverse and beneficial effects on park operations and partnerships. Adverse effects from the boundary adjustment would occur because of additional management actions and responsibilities, while beneficial effects could include new opportunities or partnerships that would reduce management needs, such as the simplification of the boundary.

Along with impacts from maintaining current operations and facilities and conducting the one-time projects identified in alternatives A and B, additional actions would take place under alternative C. These would include promoting ecosystem processes in management of the Reserve; expanding natural and cultural resource research opportunities within the Reserve; identifying commercial opportunities for a shuttle to link the Reserve with Castle Rocks State Park; expanding wildlife monitoring; and improving connections to researchers and research findings. Combined, additional short-term adverse impacts on park operations and partnerships would occur that would lead to direct or indirect long-term beneficial effects, because of improved decision-making regarding resource preservation. As in alternative B, maintaining a terrain-defined boundary for the Research Natural Area would result in increased management efficiency, and modifying grazing allotments could benefit natural and cultural resources. If grazing allotments were eventually reduced, there could be fewer administrative needs associated with their management. As in alternative B, managing naturally occurring fire could have long-term beneficial effects by reducing costs associated with potentially more extensive wildfires in the Reserve.

Overall, management of Reserve resources would improve. Increasing visitor understanding of Reserve resources would indirectly benefit resource management by increasing support for these activities. The greater emphasis on providing research opportunities and disseminating information associated with resources would have a direct or indirect minor long-term beneficial effect on Reserve resources.

ALTERNATIVE D IMPACTS

Impacts and actions in alternative D would be similar to alternatives B and C, with both negligible to moderate adverse and beneficial effects from maintaining existing park operations and partnerships. Differences in alternative D, compared to alternative B, would primarily result from

- constructing a much larger visitor center with a co-located amphitheater (instead of an amphitheater at Smoky Mountain Campground)
- expanding parking at the Indian Grove overlook, rather than just a turnaround as in alternatives B and C
- focusing on experiential interpretive programming with an emphasis on ranching, local history, and heritage tourism within the Reserve
- expanding the boundary (as in alternative C)

As in alternatives B and C, these actions would combine to result in minor to moderate long-term adverse and minor to moderate long-term beneficial effects on park operations and partnerships by requiring more staff (approximately five new positions, the same as in alternative C). Alternative D would not place as much of an emphasis on partnerships as would alternative C; however, there would also be a limited range of beneficial effects from partnerships in alternative D (similar to alternative B).

In addition to impacts from maintaining current operations and facilities and conducting most of the one-time projects identified in alternatives A, B, and C, additional actions would take place as part of alternative D. These could include facilitating in-depth and fee interpretive programming; and Parks as Classroom or climbing schools for youth. As in alternatives B and C, additional short-term adverse impacts on park operations and partnerships would lead to direct or indirect long-term beneficial effects from better decision-making associated with resource preservation; there would be improved efficiency associated with maintaining a terrain-

defined boundary for the Research Natural Area; and managing naturally occurring fire would have long-term beneficial effects by reducing costs associated with managing more extensive wildfires. Impacts associated with grazing management would be similar to alternative A.

Improved management of natural and cultural resources would result from improved understanding of resources through inventory and monitoring and from dissemination and fostering of research within the Reserve.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on park operations and partnerships (as appropriate to the alternative) would include:

- Monitor construction activities to minimize impacts on park operations and to ensure adherence to mitigation measures.
- Design new building construction to reach silver or greater certification by the LEED rating system.
- Use functional, energy-efficient appliances and heating and cooling systems in new buildings.
- Employ contractors and term employees to facilitate short-term work increases.
- Orient and inform contractors and partners about the special sensitivity associated with protecting Reserve resources.
- Coordinate work among partners to increase cooperation and minimize duplication of effort.

CUMULATIVE IMPACTS

Because City of Rocks has only been a unit of the National Park System since 1988, there has been less time than in some other parks for cumulative impacts associated with park operations to occur. Since establishment, the Reserve staff has remained small, while Reserve influence and popularity have continued to grow. An accretion of responsibilities commensurate with this growth has also

occurred, associated with management of the Reserve and impacting its staff. Visitation to the Reserve increased to nearly 100,000 in 2011. During that same time, permanent staffing also increased. Currently permanent staffing is supplemented by approximately 18 seasonal employees and a varying number of volunteers. Since the establishment of Castle Rocks State Park in 2003, the staff at the Reserve has also taken on additional responsibilities.

The Reserve has fewer facilities than most national park units of similar size, operation, and visitation. This is because most of the facilities are owned and managed by the state of Idaho and are jointly used by Castle Rocks State Park. Despite county ownership and management of slightly more than half of the road mileage within the Reserve, road maintenance comprises a substantial portion of the operations budget.

Past actions include establishment of the Reserve and construction or use of facilities near the town of Almo, Idaho, including for administration, maintenance, and housing. At the time of the comprehensive management plan (1996), the Reserve's administrative facilities were located in Twin Falls, Idaho; no housing was provided for employees and little was available in Almo (Reserve 1996a: p. 65). The Castle Rocks Administrative Unit in Almo has been used for housing and administration facilities since 1998. The comprehensive management plan called for approximately 28 FTE employees, with minimum base funding of \$900,000 (based on 1993 dollars), even though the 1993 budget was \$295,000 (Reserve 1996a: p. 64). The original campground (located within Section 36) within City of Rocks pre-dates Reserve establishment (it was created when this area was public land managed by the state), whereas Smoky Mountain Campground was constructed following approval of the comprehensive management plan (completed in 1996). In 1987, there were approximately 51 campsites within Section 36 (Reserve 1996a: p. 123). Population growth adjacent to the Reserve boundary increased at a rate of 11.6% from 2002 to 2007, an impact that may increasingly affect visitor access within the Reserve (U.S. Census Bureau 2010).

Present actions include ongoing administration of the Reserve through the Idaho Department of Parks and Recreation, based on NPS and IDPR funding of various components and staff associated with Reserve management and operations. Reserve staff would continue to divide their responsibilities between the national and state park units.

Future actions could include construction of a visitor center (alternatives A, C, and D), an amphitheater at Smoky Mountain (alternatives B and C), an outdoor learning center (alternative C), a turnaround (alternatives B and C) possibly with parking (alternative D) near Indian Grove Overlook on the Logger Springs Road, as well as other facilities. Alternatives B, C, and D also call for additional staffing (three permanent staff in alternative B and five in alternatives C and D). Similarly, as described in “Chapter 3: Alternatives,” additional funding would be needed to implement the proposals in B, C, and D—both in one-time funds and base funding.

When actions in alternatives A—D are added to the effects of other past, present, and future actions, minor to moderate adverse and beneficial effects would continue to impact park operations and partnerships.

CONCLUSION

Alternatives A–D would continue to have minor to moderate adverse impacts on park operations and long-term moderate beneficial impacts from partnerships. Alternatives C and D would use partnerships to the greatest advantage, including additional staff and more efficient operations. This improvement, combined with RNA boundary changes to increase efficiency in the field, would lead to greater beneficial effects under C and D. Alternative B would offer slight improvements over alternative A, with additional staffing but slightly reduced operations from its inward, self-directed focus.

SOCIOECONOMICS

Impacts on Socioeconomics

Impact Intensity

Negligible	There would be no measurable effect on the socioeconomic environment.
Minor	A small sector of the local or regional economy would be affected; however the effect would not be readily apparent.
Moderate	A small sector of the local or regional economy would be affected and this effect would be measurable but would not alter socioeconomic structure or functions.
Major	Changes in the regional economy would occur and would be readily apparent in shifts in the key economic functions and structure. New economic sectors could be created or others eliminated.

ALTERNATIVE A–D IMPACTS

Most socioeconomic indicators (demographics and housing availability, community assets [public utilities, services, facilities], and public health and safety) would not be affected by the actions proposed in this general management plan. Those indicators that could be affected include income and employment opportunities, grazing revenue and expenditures, and federal and private land ownership.

Income: The Reserve would continue to contribute beneficial effects to the local and regional economy. Existing income at the Reserve is composed of base and project funding. Base funding is contributed by both the Idaho Department of Parks and Recreation and the National Park Service, while project funding primarily comes from the National Park Service. In 2012, combined funding was \$818,949. Base funding is primarily used for staff salaries and operations.

Congress also appropriates funds to the National Park Service for one-time projects, which are awarded based on NPS priorities and Reserve needs. In fiscal year (FY) 2012, non-base funding accounted for 4.6% (\$37,985) of the total budget (\$818,949) for the Reserve

and Castle Rocks State Park, and provided for a range of projects including campsite and trail maintenance and volunteer programming. Because the Reserve budget comprises only a small percent of the total income generated by the portion of Cassia County where the Reserve is located, annual management and operations expenditures would continue to have a minor beneficial effect.

Employment: Employment is a subset of Reserve income and includes approximately 17.2 full-time-equivalent employees (in NPS FY 2009). (One FTE is equivalent to working 2080 hours per year.) In 2012, 15.2 FTE employee salaries and benefits accounted for the largest single category of expenditures, totaling \$621,055, or 75.8% of the Reserve budget (pers. comm. Keck 2012).

Although the Reserve employs a relatively high number of people compared to some economic sectors in Almo, the Reserve staffing level is too low to have more than a small effect on employment opportunities. As a result, there would continue to be minor long-term beneficial effects on the local economy and negligible long-term beneficial effects on the regional economy from staffing the Reserve.

Grazing: The Reserve is among a number of NPS units that permit regulated livestock grazing. The National Park Service and the Idaho Department of Parks and Recreation assumed management of grazing on publicly owned rangeland within the Reserve at its establishment, when grazing allotments were transferred from the Bureau of Land Management. Livestock grazing also accounts for the primary use of private land within the Reserve. According to Sharp and Sanders (1978):

The economic livelihood of the permittees using the allotments addressed in this plan is largely dependent on their being able to continue to graze the number of livestock they currently are (1996b: p. 3).

Currently, these six permittees use six grazing allotments to graze cattle on 7,000 acres of public land in the Reserve with an estimated 774 active animal unit months. Livestock are

also grazed on another 4,000 acres of privately owned land within the Reserve. Grazing allotments generate some income for the Reserve (less than \$1,000 per year), although it costs the Reserve much more to manage the allotments. In general, grazing income is static. Therefore reductions in grazing under alternatives B (attrition) or C (buyouts) could potentially result in fewer administrative needs and more funding for other activities.

To protect nongrazed areas within the Reserve, staff would continue to maintain approximately 50 miles of exclusion fences. As noted in the business plan, a large number of these fences need extensive repair, an action that the Reserve would continue to undertake because fence replacement may be cost-prohibitive for permittees, and requiring maintenance or replacement could disrupt community relations. Because the Reserve cannot entirely bear the cost from base funds, however, alternate funding sources would continue to be sought (Reserve 2010b: p.21).

With the proposed boundary expansion in alternatives C–D, minor adverse economic impacts would affect the Bureau of Land Management from the loss of revenue associated with approximately 3,595 acres of lands transferred under alternative C and alternative D. Because these lands contain grazing allotments, the Bureau of Land Management receives approximately \$1.35 per animal unit month (one cow/calf pair for a month) for the 3,595 acres. Because BLM responsibilities for grazing allotments—such as monitoring range condition, collecting fees, and conducting site visits throughout the grazing season to ensure grazing is according to permit conditions—and other associated activities would diminish, there would also be negligible beneficial effects from a slight reduction in administrative activities, in addition to the loss of grazing revenue.

Gateway communities: Almo and Oakley, as well as other small gateway communities such as Albion, Burley, and Snowville, would continue to experience an increase in the number of vehicles traveling toward the Reserve entrances during the week, but would especially encounter

surges on spring, summer, and fall weekends overall and during the summer travel season. Nearby and distant communities would also probably experience some negligible to minor beneficial socioeconomic effects based on federal and state expenditures for salaries, Reserve operating costs, and construction.

Reserve revenue: The Reserve collects revenue from merchandise sold in the bookstore, as well as for camping, grazing, special events, and donations. Castle Rocks State Park additionally collects revenue from camping, lodging, motor vehicle entrance fees, special events, and book/gift sales. Castle Rocks State Park also collects a day-use fee. All revenue except for merchandise and donations is pooled into a statewide parks fund and then reallocated as a portion of IDPR's appropriated base budget. In FY 2012, the Reserve and Castle Rocks State Park collected \$270,940 in revenue. Camping in the Reserve contributed 45% of this amount. Revenue from merchandise is used to replace stock, fund a visitor services employee, and to offset other operational expenses such as printing maps and brochures.

At least 80% of the Reserve's \$146,000 operational expenses are spent locally (in Minidoka and Cassia counties and elsewhere in southern Idaho) on such items as utilities, services, and supplies, which would continue to provide localized moderate long-term beneficial effects.

Employee spending: Employee spending would also continue to have negligible to minor long-term beneficial effects. Most current full-time employees live within the town of Almo, while some other seasonal employees also live in neighboring towns, including Elba, Oakley, Burley, Rupert, and Heyburn. As a result, some employee spending benefits local communities from property taxes, rent payments, and other expenditures at local and regional businesses. However most retail services, including groceries, are located in more distant towns and cities. If more employee housing was provided in one of the surrounding towns, as proposed in alternatives B–D, additional negligible to minor beneficial effects would result.

Visitor spending: There would also continue to be negligible to moderate long-term beneficial effects on local and regional economies from visitor spending on supplies, gifts, food services, and lodging. According to the Money Generation Model data, City of Rocks received 92,484 visitors in calendar year 2010, with visitors spending approximately \$6,278,000 (all visitors); \$5,959,000 of which was spent by nonlocal visitors. From this the Reserve generated 85 jobs, \$2,078,000 in labor income, and \$3,361,000 in value-added income (Stynes 2010, Table A-1). This report, however, indicates that no visitors camped within the Reserve, and therefore underreports overall spending. Because it also shows only two employees (perhaps because of the way the NPS/IDPR partnership is reported), it also underestimates overall Reserve contributions to the community/regional economy.

Federal and private land: As noted in “Chapter 4: Affected Environment,” rangeland covers 68% of Cassia County, and 28% is used for agriculture. Fifty-seven percent of the county's land is managed by federal agencies and 40% is privately owned. For these federal lands, Cassia County received \$1,799,812 for payment-in-lieu-of-taxes (PILT) in 2009. Only Elmore County (which contains Mountain Home Air Force Base) received more federal money in Idaho (BLM 2009). Payment in lieu of taxes, which is annually appropriated through Congress, helps to offset the lack of property tax revenue received by county governments when federally owned land is predominant in a county.

Under alternative A, the amount of federally owned land within the Reserve would probably remain similar to that currently owned, approximately 14,407 acres. Although there is private land within the boundary of the Reserve, it could be purchased by the federal government only on a “willing seller/willing buyer” basis (if the private landowner were willing to sell and the federal agency had or could obtain the funds to purchase). During the last 24 years, property purchases within the Reserve have occurred only opportunistically or as means to alleviate hardship situations.

Alternatives C and D (if selected for implementation and approved by Congress) would expand the Reserve boundary by 4,247 acres. Most of the proposed expansion land in these alternatives is already in the federal public domain, including 3,595 acres (85%) in alternatives C and D. As a result, the amount of private land interest that could be purchased by the federal government from willing sellers in alternative A would continue to be approximately 4,427 acres. With the boundary expansion in alternatives C and D, there could be up to an additional 652 acres of affected private lands.

The proposed boundary expansion in alternatives C and D could affect two private landowners. If these lands or interest in lands were indeed purchased through the willing seller/willing buyer authority, Cassia County could gain approximately \$8,263.00 for the additional 4,247 acres in alternatives C and D if the PILT allocation amount per acre remained the same. Based on this, there could be negligible to minor adverse effects from slightly increasing federal land ownership in Cassia County. However, that effect would be negligible if only conservation easements were acquired to protect the resources and/or achieve the desired benefits to the Reserve.

Transferring the federal lands now managed by the Bureau of Land Management in alternatives C or D would reduce income currently generated on these lands. Overall, the proposed transfer of 4,247 acres would have a negligible adverse effect on BLM holdings in Cassia County because these lands comprise approximately 0.00082%, of the 516,050 acres of BLM holdings in the county. As noted above, a portion of these other lands identified as part of the boundary expansion currently generate income for the Bureau of Land Management because they comprise portions of grazing allotments. Based on the most recent data, the Bureau of Land Management obtains \$1.35 per animal unit month for grazing allotments.

Private property: There could also continue to be negligible to minor or moderate localized adverse impacts on private property / private landowners from the presence of the Reserve. Although the Reserve would continue to provide information to climbers and others about private property within City of Rocks, including posting in some popular boundary areas on behalf of private property owners, it is likely that there would continue to be negligible to minor adverse effects on private landowners associated with recreational use of the Reserve and surrounding area. Impacts that have occurred in the past include concerns about trespassing, damage to rocks, liability associated with climbers and other recreational visitors, and effects on or destruction of private property, such as damage to fences or livestock water sources. Other impacts have included chasing of cattle, gates not left as they are found (open or closed), and trail erosion.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on socioeconomics (as appropriate to the alternative) would include:

- Continue implementation of the willing seller/willing buyer concept regarding future federal land purchases from private landowners.
- Continue to issue permits for use of grazing allotments unless permittees abandon use of these.
- Continue implementation of the NPS/IDPR cooperative agreement for management of the Reserve.
- Continue to provide some employee housing in Almo, combined with facilitating opportunities for employee housing elsewhere.

CUMULATIVE IMPACTS

Over time, both the Reserve and funding for it have increased. After the Reserve was established, approximately 2,313 acres of land was sold by willing sellers. As noted in the business plan, although IDPR base funding decreased from FY 2001 to FY 2004, there was a concurrent increase in the overall base budget as a result of efforts to develop visitor infrastructure and protect resources after the 2003 opening of Castle Rocks State Park, as well as from implementation of parts of the *Castle Rocks State Park Master Plan*, and subsequent facility expansions in 2007. In addition, the National Park Service approved a base budget increase of \$162,000 to preserve and protect cultural and natural resources in 2009. Adjusting for inflation to calculate constant dollars, the base budget therefore increased by \$15,000. This was an increase of 0.25% (Reserve 2010b: p. 55). The Reserve currently projects that its budget would decrease slightly.

Visitation to the Reserve has also increased. Ongoing increases in visitation could continue to affect the demand for lodging in gateway communities, such as Almo and Oakley, contributing to additional visitor spending in these areas for goods and services, a beneficial effect, depending on the degree to which these areas are able to accommodate this use. Currently, although both food and lodging are available in these areas during peak periods, food services are diminished during off-peak periods. If shoulder-season visitation increased, there could be minor cumulative adverse impacts from visitors seeking these services elsewhere and therefore staying outside of the immediate local communities.

As described in “Chapter 4: Affected Environment,” there were 179 federal employees and 1,444 state and local government employees in Cassia County in 2000, working for places such as the Reserve, Castle Rocks State Park, the U.S. Forest Service, and the Bureau of Land Management, in addition to other state and federal agencies. The number of federal employees has decreased from approximately 234 in 1980, while the number of state and

local employees increased by approximately 50% during the same time period. Because of fluctuation in federal and state budgets, it is likely that these figures would also continue to increase and/or decrease.

As noted above, there were approximately 925,050 acres of federal land in Cassia County, for which Congress allocated \$1,799,812 in PILT funds in 2009. Land within the Reserve comprises approximately 11,000 acres of this. Another 7,630 acres are federally owned but are not part of the Reserve or adjoining USFS or BLM land. “Chapter 4: Affected Environment” shows that the U.S. Forest Service managed 387,053 acres, and the Bureau of Land Management managed 516,050 acres in 2009. Therefore federally owned lands in the Reserve comprise a small part of the overall federal land acreage in the county.

If all private lands within the Reserve were purchased in alternative A, approximately 4,427 acres would become federally owned. Although this is unlikely to occur and is not planned within the 20–25 year time frame of this plan, this area would comprise an additional 0.0024% of the total 1,642,624 acres of land within Cassia County. In alternative C, another 4,247 acres could be added to federal lands with the boundary expansion, adding to county federal lands by 0.0026%. In alternative D, another 1,549 acres could be added to federal lands with the boundary expansion, comprising an additional 0.0009% of the lands within the county. Because, as noted above, it is likely that Congress would continue to authorize PILT funds, Cassia County would gain approximately \$8,263.00 for the additional 4,247 acres in alternative C or approximately \$3,015.00 for the additional 1,549 acres in alternative D, if the PILT allocation amount per acre remained the same. Based on this, there would continue to be negligible to minor adverse effects from additional federal land ownership in Cassia County. These effects, however, would be greater in alternatives C and D than in alternatives A or B.

When actions in alternative A are added to the effects of other past, present, and future actions, there would be minor cumulative beneficial

effects on income and employment in Cassia County. Minor to moderate beneficial effects would occur related to tourism spending and job creation; some communities, such as Almo, would experience minor beneficial effects; and negligible to minor adverse effects would result from slightly more federal land ownership. Similarly, when actions in alternative B are added to the effects of other past, present, and future actions, effects would be similar. Alternatives C and D would add minor, rather than negligible to minor adverse effects from federal land ownership.

CONCLUSION

There would generally continue to be long-term negligible to minor beneficial effects on the socioeconomic environment in the region (Cassia County), whereas these effects would probably be minor in the local area. Based on the Money Generation Model data, the Reserve contributes to the economic base in Cassia County by drawing both local and nonlocal visitor spending to the area. Although additional staff would be added to the Reserve in alternatives B–D (three in alternative B and five in alternatives C and D), the impact of the Reserve on direct employment opportunities in Cassia County would remain negligible to minor (with approximately or slightly more than 20 FTEs). According to the Money Generation Model data, visitor spending associated with the Reserve would continue to generate 85 area jobs (just over four times the number of Reserve FTEs). If grazing allotments remained the same, these would continue to contribute to Reserve income and operations funding. Similarly, continued visitor spending for camping and other activities would also contribute. Negligible to minor long-term adverse effects from slightly more federal land ownership could be contributed by the proposed expansion of the Reserve in alternatives C–D. If additional private lands were acquired, there would also be short- or long-term beneficial effects on some individual landowners from income generated by the sale of land.

SPECIAL USES AND DESIGNATIONS

IMPACTS ON GRAZING AND LIVESTOCK TRAILING

Impact Intensity

Negligible	Impacts on grazing operations would not be measurable or perceptible.
Minor	Impacts on grazing operations would be perceptible, with the action causing a slight change in grazing operations, but the change would be localized.
Moderate	Impacts on grazing operations would be apparent, with the action causing limited changes in grazing operations.
Major	Impacts on grazing operations would be readily apparent or widespread, with the action causing substantial changes in grazing operations.

Background

When the National Reserve was established in 1988, Congress recognized that appropriate management included maintenance of the “historic rural setting” (PL 100-696). According to the comprehensive management plan:

the historic rural setting is the sum total of ranching land-use patterns and artifacts accumulated through 150 years of Euro-American use and development. It comprises the spacious open expanse and the fence lines, corrals, trailing routes, and water sources of ranching operation. It is the large-acre fenced fields and gravel roads on section lines. It imparts an increasingly rare and scenic quality reminiscent of the American West and thus constitutes a significant value of the Reserve (Reserve 1996a: p. 106).

Although NPS policy and 36 CFR 2.60 prohibit livestock use in park units where that use is not expressly authorized, the legislative mandate at City of Rocks is to “protect the historic rural setting” and to facilitate continuing private use in the Reserve. This was determined by the Regional Solicitor to be sufficient authority to allow continued managed grazing within the Reserve (Reserve 1996a). As noted by Back (1991):

This interpretation of Congressional intent was validated by the opinion rendered by the Assistant Regional Solicitor, Pacific Northwest Region. The Solicitor’s opinion was predicated on 36 CFR Sec. 2.60 (a) (3), which states that livestock use is prohibited except when it is “. . . necessary. . . or required in order to maintain a historic scene” (as quoted in the Reserve’s comprehensive management plan).

Grazing is integral to the history of the Reserve and represents one of the interpretive themes in the Reserve’s 1996 comprehensive management plan; however, grazing also impacts trails, vegetation, and cultural sites among other resources, and adds a layer of management responsibility and additional needs for community engagement (Reserve 2010b: p. 9–10). During alternatives scoping, concerns were expressed about how the alternatives would affect grazing and livestock trailing use of the Reserve. As a result, this impact topic was included.

ALTERNATIVE A IMPACTS

Livestock use (grazing and trailing) would continue to occur within City of Rocks as it has since about 1843, beginning with the first emigrant wagon trains on the California Trail (Reserve 2008a: p. 3). As homesteads were established between 1867 and 1910, grazing continued and crop cultivation began. Although crop cultivation ended in 1952, grazing continues both on public and private lands within the Reserve. Sharp and Sanders (1978) state that “the interrelationship of private and public lands is such that if any part of this cyclic grazing pattern is removed, it would be difficult

for a ranch to continue to operate” (Reserve 1996b: p. 3). The 2008 grazing management plan further explains that “the economic livelihood of the permittees using the allotments addressed in this plan is largely dependent on their being able to continue to graze their current numbers of livestock” (Reserve 2008a: p. 3). As a result, long-term negligible to minor adverse and minor to moderate beneficial effects would persist from continuing grazing and livestock trailing, and from continuing to employ the following management objectives within the comprehensive management plan that recognize the historic importance of livestock use:

- Manage livestock use such that an appropriate balance between grazing and natural resources protection, cultural resources preservation, recreational use, and scenic quality is assured.
- Through managed grazing and ranching activities protect, preserve, and interpret the historic rural setting.
- Provide for managed use of designated pasture lands within the Reserve (Reserve 1996a: p. 1).
- Maintain or establish upward trend (range improvement) on all range sites.
- Protect sensitive resources to the greatest extent possible, including threatened and endangered species and wetlands.
- Initiate vegetative management to enhance the natural landscape when and where appropriate.
- Use livestock grazing to obtain and maintain the landscape objectives (Reserve 1996a; p. 5).

Within the Reserve, grazing would continue to be managed for optimum natural vegetation, scenic quality, and livestock use appropriate to the historic rural setting and other managed uses of the Reserve. Specifically, grazing would continue to be managed to maintain the historic rural setting as called for by Reserve legislation.

Similarly, there could be both minor beneficial and adverse impacts from continuing to use the following program guidelines (from the grazing management plan) to achieve comprehensive management plan goals related to grazing:

- The natural and cultural resources and scenic quality of City of Rocks may not be impaired by livestock use.
- In all issues related to range use, management decisions will be based first on whether or not resources will be impaired.
- The 1991 AUM total for the Reserve is established as the maximum level for range use.
- Private lands purchased by City of Rocks and vacated allotments may be incorporated into the Reserve's grazing program and the available animal unit months may be used by one or more of the remaining permittees.
- Existing landowners and permittees (within the City of Rocks boundary) have preferential status for future allotment permits.
- Current allotments, which include City of Rocks and BLM or USFS lands outside the Reserve, will continue to be redefined (where feasible and by mutual agreement with the respective agency) so that all grazed public lands within City of Rocks are exclusively City of Rocks allotments.
- As new City of Rocks allotments are established, the carrying capacity for each will be determined. These carrying capacities will become the maximum AUM levels for future use (Reserve 1996b: p. 1–2; bracketed information Reserve 2008a: p. 2).

Because grazing within City of Rocks originated with management by the U.S. Forest Service and the Bureau of Land Management, there were no fences that separated the public lands in City of Rocks from the public lands outside of it. In many allotments, current fences often envelop a range of jurisdictional boundaries. For example, there can be private, City of Rocks,

and BLM lands fenced within one pasture and/or allotment.

Although sections of the allotments between the Reserve and some adjacent BLM and USFS public lands have since been fenced, unfenced Reserve/USFS lands are still found on one allotment (Graham Creek), unfenced Reserve/BLM lands are found on four allotments (Smoky Mountain, Heath Canyon, Trail Canyon, and Tracy Lane), and unfenced Reserve/private lands are found on three allotments (Graham Creek, Trail Canyon, and Heath Canyon). Therefore grazing management is currently coordinated with an adjacent landowner (Bureau of Land Management, U.S. Forest Service, or private) on five of six allotments.

Where the Bureau of Land Management co-manages allotments, land management is guided by the *Cassia Resource Management Plan*. USFS management is guided by the Sawtooth National Forest plan (Reserve 2008a: p. 4). There are also natural barriers to livestock movement in some areas within the allotments that allow the concentration of grazing to be managed in pastures without fencing, an indirect beneficial effect for both the Reserve and permittees, because this reduces the need to build or maintain fencing.

Pasture and some allotment fences, however, are maintained by permittees prior to use of allotments and/or the pastures within them. As a result, Reserve permittees would continue to ensure that fences and water diversions within existing pastures/allotments were in good working order prior to allowing livestock into the pasture/allotment at the beginning of the grazing season. Therefore, there would continue to be minor localized adverse effects on grazing permittees from maintaining these each season.

More than 11,000 acres (approximately 76%) of the land within the Reserve boundary would continue to be grazed. Of this approximately 4,000 acres (36%) is privately owned. According to the 2008 draft grazing management plan, a portion of this grazed area was originally seeded with several species of crested wheatgrass. The four lower-elevation basins have had a long

history of rangeland seeding on them (Reserve 2008a: p. 49). The following allotments were seeded with crested wheatgrass when privately owned or when managed by the Bureau of Land Management or U.S. Forest Service: approximately 160 acres of Graham Creek, the 40-acre BLM Circle Creek allotment leased to the Reserve, most of the 400-acre Kempton allotment, most of the private land and some of the BLM land in the Trail Canyon allotment, and approximately 240 acres of the Tracy Lane allotment (Reserve 2008a: p. 14–38). To the extent that these areas continue to produce forage as a result of these seedings, they would continue to be the most productive forage areas in allotments where they were present, a minor to moderate long-term beneficial effect on grazing.

Under alternative A, most of the grazing allotments identified in the 2008 grazing management plan would continue to be used (see table 45). In addition, recommendations for improving the range condition and monitoring of allotments would also continue to be implemented. This plan resulted in the closure of the Circle Creek allotment to increase protection for and public access to the California Trail. Because the same number of livestock are permitted to graze elsewhere within the Reserve, closure of this area has had a negligible adverse effect on grazing.

TABLE 45. COMPARISON OF GRAZING ALLOTMENTS 1989 AND 2013				
Allotment	1989 acres Public Land	2013 acres Public Land	1989 AUM Public Land	2013 AUM Public Land
Circle Creek	1,118	0	16	0
Emery Canyon*	898	1,030	106	22
Graham Creek	2,665	3,190	201	222
Heath Canyon	1,674	1,080**	13	21
Kempton	N/A	400	N/A	84
Tracy Lane	395	560	47	49
Trail Canyon	1,365	740	89	56
TOTALS	8,115	7,000	472	454

*Formerly part of Walters Creek Allotment, which is now managed by the U.S. Forest Service, and configured differently.

**Only 240 acres are actually grazed

Long-term beneficial effects would continue from the Reserve Superintendent's authority to transfer livestock grazing permits to immediate family members/heirs. This could only be done at the written request of the current lessee, and permittees would continue to be unable to transfer or sell permits (Reserve 2008a). Adverse effects could continue when the Reserve and the Bureau of Land Management differ as to the acceptance of a transfer of grazing rights, as occurred in Trail Canyon (BLM comments on preliminary DEIS, Chapter 5, p. 166).

A reduced range condition has resulted in the Reserve because grazing has caused an increase in native woody plants (especially sagebrush and rabbitbrush), an increase in nonnative plants resistant to grazing, and a decrease in native perennial grasses and forbs. This constitutes a minor to moderate localized adverse effect on livestock grazing and trailing (Reserve 1996a: p. 44). Under the grazing management plan, prescribed fire was proposed as a tool to minimize the incidence of brush and trees in some allotments; however, the Reserve currently operates under a full suppression fire management program and therefore cannot employ either prescribed fire or fire use in managing grazing allotments. Although some prescribed fire would continue to be used in adjacent BLM and USFS grazing allotments, no prescribed fire would be used to manage Reserve grazing allotments under alternative A, resulting in continued long-term minor to moderate localized adverse effects on grazing if range conditions continued to deteriorate.

Updating the grazing management plan, including conducting environmental impact analysis on the current and proposed actions, could result in some modifications to the way grazing allotments are overseen. The plan calls for additional diversion of water for livestock, management of grazed areas to improve existing grazing and resource conditions, and implementation of other proposed recommendations within the plan, such as prescribed fire if the fire management plan was also updated. Combined, these actions could

have a range of negligible to moderate beneficial and minor to moderate localized adverse effects on livestock grazing, depending on specific measures identified, but they would be unlikely to adversely affect trailing.

IMPACTS COMMON TO ALTERNATIVES B-D

In all alternatives, except for alternative C, the Reserve would continue to manage grazing to meet long-range objectives to preserve and protect the significant natural and cultural resources within it and to maintain grazing at an economically viable level for the permittees, a long-term minor to moderate beneficial effect on grazing and livestock trailing. Livestock trailing would also continue to be permitted in all zones (except for the Research Natural Area Zone), a long-term minor beneficial effect.

As in alternative A, grazing in riparian areas and wetlands would be systematically eliminated in all alternatives through fencing and/or other modifications, such as timing, and grazing would continue to be prohibited in the Research Natural Area. Although the Research Natural Area would be expanded, areas of expansion are not currently used for grazing. The negligible loss of grazing area attributed to fencing out wetlands and riparian areas would have a long-term negligible to minor adverse effect on allotments and long-term beneficial effects on Reserve resources, including vegetation and water resources.

If the fire management plan was updated, as called for, to include fire use and/or other techniques such as prescribed fire or expansion of hazard fuel reduction, its implementation could reduce or expand the incidence of shrubs in grazing allotments. Short-term negligible impacts could occur during hazard fuel reduction activities and short-term minor to moderate adverse effects could result from implementing fire use. These would be offset by long-term negligible to moderate beneficial effects to livestock grazing from improvements in range condition (which would probably equate to better forage for livestock).

ADDITIONAL IMPACTS FROM ALTERNATIVE B

In alternative B, reductions in allotments could occur if permittees discontinue requests for permits, based on changing business models or abandonments, or for noncompliance with the conditions of their permits. Although the total number of livestock and animal unit months could decrease under this approach, this could only occur through attrition over time. As a result, there would continue to be grazing but it could eventually happen at a reduced level. If these allotment reductions occurred through attrition, there could be opportunities to reduce grazing in the California Trail Zone or the Visitor Facilities and Access Zone. However the degree of resulting attrition is unknown, and impacts could therefore range widely. Modifications to grazing allotments would allow for the same number of livestock and animal unit months associated with allotments. Reductions in allotments could only occur if permittees abandoned their allotment or if there was consistent failure to comply with the conditions of the permit.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

In alternative C, reductions in overall grazing would occur if permittees chose to take advantage of grazing buyouts. This could decrease the total number of livestock and animal unit months in the Reserve. Depending on the permittee, grazing buyouts could have long-term minor beneficial effects from the one-time income or moderate adverse effects if the permittee continued livestock operations but was unable to compensate for the loss of grazing area within the Reserve.

Proposed boundary expansion could result in minor to moderate adverse effects on BLM grazing management. Lands within the boundary modifications proposed in alternatives C are currently part of existing BLM-managed grazing allotments. It is likely that if transfer within the Department of the Interior (DOI) from the Bureau of Land Management to the National Park Service occurred, that the

grazing allotments on these lands would be initially retained; however, it is unknown what provisions would be in any DOI agreement or legislation related to the boundary adjustment. Therefore managing the allotments would continue to require cooperation between the Bureau of Land Management and the National Park Service / Idaho Department of Parks and Recreation. Later, the grazing permittees would probably have the option of participating in the grazing buyout program established under this alternative.

If the boundary expansion was approved, one allotment would be fully transferred (Circle Creek) and three others would be partially transferred (BLM Smoky Mountain, BLM Junction Seeding, and BLM Almo Flat) under alternative C.

Because shared management of allotments (one allotment owned/managed, for example by the National Park Service, the Bureau of Land Management, and a private landowner) began when the Reserve was created, the Bureau of Land Management and the Reserve have established administrative procedures that would assist if this were to occur again, therefore limiting adverse effects. For instance, the 2008 grazing management plan identifies the portion of each allotment owned by the National Park Service, Bureau of Land Management, and private landowners, and billing for animal unit months is split between these for the Idaho Department of Parks and Recreation and the Bureau of Land Management.

ALTERNATIVE D IMPACTS

Impacts associated with alternative A would continue in alternative D. There are no proposed changes in livestock numbers or season of use. As in alternative B, modifying grazing allotments, such as to exclude grazing in the Visitor Facilities and Access Zone but allowing for the same number of livestock and animal unit months would have no effect on existing permittees.

Many impacts on grazing from alternative D would be similar to alternative B. In addition, lands within the boundary modifications proposed in alternatives C and D are currently part of existing BLM-managed grazing allotments. Although grazing allotments on these lands would be retained if transferred within the Department of the Interior from the Bureau of Land Management to the National Park Service, managing the allotments would continue to require cooperation between the Bureau of Land Management and the National Park Service / Idaho Department of Parks and Recreation. If the expansion was approved, one would be transferred (BLM Circle Creek) and two split (BLM Almo Flat and BLM Smoky Mountain) under alternative D. As in alternative C, if allotments were split between the Bureau of Land Management and the Idaho Department of Parks and Recreation, the AUM billing would be split between the allotment owners according to established procedures.

Because of the emphasis in this alternative on public participation in activities associated with ranching (including grazing operations), livestock grazing and trailing would probably continue at current levels, resulting in no effect on these activities.

As in alternative B, the Reserve would consider removing cattle pasture allocations from the Visitor Facilities and Access Zone where possible. This would constitute a negligible to minor adverse effect on livestock grazing and trailing because there would be no increase in allotments or animal unit months.

Opportunities to allow visitor participation in cattle drives, mending or constructing fences, monitoring grazing allotments, and branding demonstrations, among other activities, could result in minor beneficial or adverse effects on grazing and trailing, depending on the degree to which these activities enhanced or hindered day-to-day activities of permittees.

CUMULATIVE IMPACTS

Past actions that have affected grazing and livestock trailing include dryland farming. According to the 2008 draft grazing management plan, when climate conditions changed and these farms were abandoned in the 1920s, the land was slow to revert back to its natural vegetation and forage production was limited. With the availability of crested wheatgrass in the late 1940s and 1950s, much of the area that had been farmed was cleared of brush and seeded with crested wheatgrass. Prior to seeding crested wheatgrass, the availability of spring and fall forage generally determined how many cattle a ranch could run. The crested wheatgrass seeding, however, increased the amount of forage and also gave the associated depleted native ranges an opportunity for recovery and improvement in ecological condition, albeit to a nonnative assemblage of species (Reserve 2008a: p. 3). As noted in the "Vegetation" section of this GMP, the species composition of most of the lower elevation basins has been altered by past uses.

According to the preliminary natural resource condition assessment, historical land management activities, livestock grazing, and fire suppression have probably reduced the natural fire frequency in the past 150 years, resulting in the dominance of woody species (Appendix A and Morris 2006 in Erixson and Corrao 2011). As successional processes occur, dominant species change from sagebrush to Utah juniper and finally to pinyon pine (Reserve 2008a: [Appendix A] p. 54). This has resulted in invasion of some areas by woody species, including sagebrush and juniper. Other allotments are dominated by curl-leaf mountain mahogany and juniper.

As a result, the heavy fuel load provided by woody species probably contributed to the intensity and spread of wildfires in 1999 and 2000. Without some type of brush and tree control, range condition for grazing would probably continue to deteriorate, while future fires of higher intensity would continue to pose a threat to the Reserve. As noted in the 2008 draft grazing management plan, an accumulation of fine fuels (such as grasses) also increases the chance of wildfire ignition (Reserve 2008a: p. 5).

Since the Reserve was established, there has been a reduction in availability of approximately 1,115 acres of available grazing area within City of Rocks, which can be attributed to the loss of grazing from the former Circle Creek allotment and redistribution of grazing to other allotments, including the Kempton, which was added from purchased lands. There has also been a reduction of approximately 18 animal unit months (table 45). Outside the Reserve, grazing areas have remained fairly stable. The Reserve is surrounded by grazing on private and public lands, including approximately 2,005 acres on BLM-managed lands (Reserve 2008a) and an unknown number of acres on USFS-managed lands.

Currently, six permittees graze cattle on approximately 7,000 acres of public land in the Reserve and 4,000 acres of private land for a total of approximately 11,000 acres or 76% of the 14,407 acres of land within the boundary (Reserve 2010). Reserve lands are grazed by an estimated 472 animal unit months in six allotments. Table 45 shows a comparison between past grazing in the Reserve at establishment in 1989 and in 2013.

Present actions include the recent project to build a half-acre enclosure around a spring and riparian area at Indian Grove within the Graham Creek allotment.

When actions in alternative A are added to the effects of other past, present, and future actions, there would continue to be negligible to minor cumulative adverse effects on grazing and livestock trailing. Alternative B would have minor to moderate cumulative adverse effects on grazing and negligible beneficial effects on livestock trailing, which would continue to be allowed. Over time, alternative C could eventually result in cessation of grazing within the Reserve, depending on how many permittees took advantage of the voluntary grazing buyout program. Alternative D would have the potential to improve flexibility associated with livestock grazing because of the boundary expansion. Alternative D would have similar cumulative negligible to minor adverse and beneficial effects on grazing and beneficial effects on livestock trailing.

CONCLUSION

Existing impacts on grazing and livestock trailing would continue in alternative A. The number of animal unit months would not change under alternative A. Grazing and livestock trailing would continue to be permitted in all zones except for the Research Natural Area Zone under alternatives A–D. Future opportunities to reduce grazing in the California Trail Zone in alternatives B–D and in the Visitor Facilities and Access Zone in alternatives B and D could result in a negligible to minor adverse effects on grazing; however, livestock trailing would continue to be permitted. Long-term negligible beneficial effects could also result from alternative D because of visitor participation in activities related to grazing and livestock trailing, thereby increasing understanding and support. If boundary expansion occurred in alternative C or D, there would probably be internal adjustments to management of grazing allotments. If boundary expansion occurred, grazing would probably continue under alternative D, resulting in minor beneficial effects. However, it is unknown what provisions would be attached to the agreement or legislation related to grazing in alternative C. Therefore, alternative C would probably have minor to moderate adverse effects on grazing, depending on voluntary participation in the grazing buyout program, and negligible beneficial effects on livestock trailing, which would continue to be allowed.

SPECIAL USES AND DESIGNATIONS

Impacts on City of Rocks National Natural Landmark

Background

The National Natural Landmarks Program recognizes and encourages the conservation of sites that contain outstanding biological and geological resources, regardless of land ownership. It is the only natural areas program of national scope that recognizes the best examples of biological and geological features in both public and private ownership. National natural landmarks are owned by a variety of land stewards, and participation in the program

is voluntary. National natural landmarks are selected for their outstanding condition, illustrative value, rarity, diversity, and value to science and education (NPS 2012e).

ALTERNATIVE A IMPACTS

Minor long-term beneficial effects would occur from proactively preserving the features associated with the national natural landmark. Additional moderate long-term beneficial impacts would ensue from conducting a systematic inventory of the pinnacles and sensitive rock features included in the national natural landmark. This inventory would expand a partial photographic assessment of the features within the Reserve portion of the national natural landmark conducted in the mid-1990s. Beneficial impacts would occur from improving understanding of these features and potentially using the inventory for an update of the national natural landmark and/or its boundary if the national natural landmark was found to have omitted some key rock features, a minor to moderate long-term beneficial effect. These could include aligning the NNL boundary to include the rocky areas in the northern end of the Reserve.

Minor to moderate localized adverse effects would continue to be contributed from a variety of actions associated with recreational use and grazing. Grazing impacts may include exacerbated natural exfoliation of rocks, where livestock rub against sensitive areas (such as concave depressions where cavernous weathering is present) as they seek shade. Climbing impacts may include marring the face of rock pinnacles and purposefully or inadvertently breaking off flakes or holds. Other recreational uses, such as scrambling in or around pinnacles that are on a narrow pedestal, may cause these pinnacles to topple. For example, since the Reserve's comprehensive management plan was published, a small pinnacle feature with cavernous weathering east of the Bath Rock trailhead was toppled. Rock features with cavernous weathering and blistering are among the most fragile and most susceptible to impacts.

ALTERNATIVE B–D IMPACTS

Beneficial and adverse impacts from alternative A would continue. The proposed Reserve boundary expansion in alternatives C and D would also encompass a portion of the national natural landmark that currently lies outside of the east boundary of the Reserve. Including additional features within both the national natural landmark and the Reserve boundary would have minor to moderate long-term beneficial effects, if this expansion was approved by Congress through legislation. Beneficial effects would also occur if pinnacles on private lands were later purchased via a willing seller/willing buyer transaction.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on the national natural landmark (as appropriate to the alternative) would include:

- Improve visitor education and interpretation associated with the national natural landmark.
- Initiate cooperative management of areas within the national natural landmark (alternative C).

CUMULATIVE IMPACTS

When it was initially reviewed, the geologic recommendations for the national natural landmark identified only the state-owned Section 36, along with one whole (25) and one partial (26) section in the Sawtooth National Forest (Jones 1973). Most of the significant landforms, however, were identified in parts of sections 25, 26, and 36 (township 15 south, range 23 east); in sections 19, 30, and 31 (township 15 south, range 24 east); and in sections 11, 12, and 13 (township 16 south, range 23 east) (Reserve 1996a: p.12). At the time of designation, landowners of the national natural landmark included the Bureau of Land Management, the U.S. Forest Service (Sawtooth National Forest), the state of Idaho, and several private property owners. Designated for three key geologic erosional features—bornhardts,

tors, and inselbergs—it was tentatively identified as the type location (place where first identified/described) for inselbergs in the NNL nomination (see the “Geology” section in “Chapter 4: Affected Environment”).

Past actions that have contributed to cumulative effects on the national natural landmark include new NNL regulations that resulted in a 90-day opportunity to withdraw from the NNL designation. In the case of Cassia Silent City of Rocks National Natural Landmark, two landowners, J. R. Simplot Company and Mr. Robert D. Eck, requested withdrawal. The two withdrawals resulted in a combined reduction in area of approximately 207 acres, making the current landmark boundary approximately 18,687 acres, a long-term cumulative adverse effect. Current actions to preserve the features associated with the national natural landmark within the Reserve would continue to have minor cumulative beneficial effects. Potential future actions, such as conducting an inventory of NNL pinnacles and possibly updating the boundary or purchasing lands that have been withdrawn, would also have minor to moderate cumulative beneficial effects. When actions in the alternatives are added to past, present, and future actions, minor adverse and beneficial cumulative effects would occur.

CONCLUSION

Alternatives A–D would have a range of minor to moderate long-term beneficial effects, coupled with minor to moderate localized adverse effects. Beneficial effects would be greater in alternatives C and D, compared with A and B.

SPECIAL USES AND DESIGNATIONS

Impacts on City of Rocks National Historic Landmark

Impacts would be the same as described in the “Cultural Landscapes” section.

SPECIAL USES AND DESIGNATIONS

Impacts on California National Historic Trail

ALTERNATIVE A IMPACTS

The Reserve would continue to manage approximately 3.5 miles of the California Trail on public land, while another approximately 6 miles would be within the Reserve on private land. This “historic route and its historic remnants and artifacts” would continue to be identified and preserved for public use and enjoyment as identified in the National Trails System Act (PL 90-543). (See also the “Cultural Landscapes” section in this chapter.)

Based on the cultural landscape inventory (NPS 2008a), ongoing minor impacts on California Trail resources (such as from grazing) would continue, including livestock trampling ruts, erosion, and continued loss of axle grease inscriptions from weathering. Because the axle grease inscriptions cannot be protected from natural weathering without extensive modifications to rocks, which would adversely affect the cultural landscape, existing efforts to conduct a systematic photographic inventory of the axle grease inscriptions would have long-term minor to moderate beneficial impacts by preserving these otherwise transient resources for future research, interpretation, and public interest.

ALTERNATIVE B–D IMPACTS

Long-term beneficial effects would be contributed by developing a plan to preserve the California Trail ruts under alternatives B–D. If grazing was eventually excluded from the California Trail Zone under alternatives B and C, there would be long-term moderate beneficial effects to California Trail resources.

With the proposed boundary expansion in alternatives C and D, approximately 1.1 miles of the California Trail would be added to the Reserve. If Congress authorized this expansion under either of these proposals, there would be long-term minor to moderate beneficial effects from preservation and investigation of the

additional 1.1-mile section of the trail, including from minimizing other uses that could occur in this area under BLM management.

ADDITIONAL IMPACTS FROM ALTERNATIVES B and D

Acquiring an easement from private landowners on the southwest side of the Reserve to protect a section of California Trail extending toward Granite Pass would have additional long-term moderate beneficial effects from ensuring that potential future impacts that could adversely affect this area would not occur.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures would be the same as listed under the “Cultural Landscapes” section.

CUMULATIVE IMPACTS

(See “Cultural Landscapes” section in this chapter.)

CONCLUSION

There would continue to be minor beneficial effects on the California National Historic Trail in alternatives A and B. alternatives C and D would contribute additional beneficial effects from a possible boundary expansion that would include more of the trail within the Reserve and from a possible easement that could increase protection for the California Trail in alternative D.

SPECIAL USES AND DESIGNATIONS: RESEARCH NATURAL AREA

Impacts on Research Natural Area

ALTERNATIVE A IMPACTS

Under alternative A, the Research Natural Area would remain at approximately 315 acres (approximately 2% of the Reserve) and would continue to be managed according to the following objectives:

1. Preserve a wide range of undisturbed, representative areas that typify important forest, shrubland, grassland, alpine, wetland, and similar natural situations that have special or unique characteristics, or provide outstanding examples of geological, biological, or ecological processes of scientific interest and importance.
2. Preserve and maintain genetic diversity.
3. Protect against deleterious environmental disturbance.
4. Provide student and professional education.
5. Serve as a baseline area for measuring long-term ecological changes.
6. Serve as a control area for comparing results from manipulative research conducted elsewhere (NPS 2004a).

Managing the Research Natural Area for these purposes would continue to provide long-term minor to moderate beneficial effects. According to the natural resources condition assessment of the Research Natural Area, it is an excellent reference site for monitoring the effects of management actions in similar sites outside the Research Natural Area. This is because it can provide baseline data for long-term monitoring of natural changes, including wildfire and climate change in the singleleaf pinyon community (Erixson and Corrao 2011). The Research Natural Area preserves a healthy stand of old-growth singleleaf pinyon pine (*Pinus monophylla*) at the northernmost distribution of

the species and associated community; it was the first of four research natural areas established in Idaho to preserve the singleleaf pinyon; it contains a high incidence of this species; and can therefore help preserve the genetic diversity of the singleleaf pinyon community (Bell and Barton 2010). The pinyon pines in the Research Natural Area are also taller and older than the average trees across the range of the species (Bell and Barton 2010). According to Miller, Tausch, and Waichler (1999), old-growth stands of pinyon-juniper are rare and structurally complex with higher levels of biological diversity (Bell and Barton 2010).

The Research Natural Area would continue to be used for nonmanipulative research, education, and other activities that would not detract from its research values, and actions such as grazing and livestock trailing would continue to be prohibited. The Research Natural Area would continue to protect a moderately intact ecological area with little evidence of human use and few nonnative species. The Research Natural Area would also remain open to the public, including climbers accessing traditional or previously established routes.

Negligible to minor long-term beneficial effects on RNA resources would result from administrative changes to an unused portion of an existing grazing allotment that slightly overlaps the western boundary of the Research Natural Area. Working with the permittee, Reserve staff would realign the allotment to eliminate this steep section where no grazing occurs.

Although a 100-acre expansion to the west of the current Research Natural Area was proposed in the Reserve's comprehensive management plan (Reserve 1996a), it was not delineated on a map nor did it become part of the Research Natural Area. This proposed expansion may conform to a recommendation by the Idaho Natural Areas Coordinating Committee that was not accepted by the U.S. Forest Service.

IMPACTS COMMON TO ALTERNATIVES B–D

In addition to impacts in alternative A, there would be a variety of beneficial effects contributed by the action alternatives.

Compared to alternative A, expansion of the Research Natural Area and its designation as a separate zone would focus the purposes of the Research Natural Area. The revised zone boundary would improve management of the area by identifying the boundary using the natural contours of the landscape, such as natural terrain, rather than topographic section lines that do not conform to these and cannot be detected in the field. As a result, the Research Natural Area would be easier to administer in alternatives B–D.

Alternatives B, C, and D would have long-term beneficial effects from slight (alternatives B and D) to moderate (alternative C) expansion of the boundary to encompass additional areas identified by a research study of the Research Natural Area (Bell and Barton 2010). Although this report recommended expansion to the west, the boundary in alternatives B, C, and D would be expanded primarily to the south and east, while also taking in a small area to the west. Alternative D would allow for the largest expansion, extending the boundary farther to the east. The Research Natural Area would encompass approximately 491 acres (approximately 3% of the Reserve) in alternatives B and D and 662 acres (approximately 4% of the Reserve) in alternative C. This expansion could improve opportunities for visitors to explore an area of southern Idaho in its natural condition with few human impacts.

Extending the Research Natural Area would increase available wildlife habitat for several Idaho Sensitive Species and expand general wildlife habitat protection, encompassing an additional area characterized by old-growth pinyon pine and more habitat for the cliff chipmunk and pinyon mouse, two Idaho Sensitive Species. Because more resources would be protected within the boundary of the Research Natural Area Zone and no additional

development would be allowed (aside from trails and traditional or established climbing routes), there would be long-term negligible to minor adverse effects associated with continued use for research, hiking, and climbing, and moderate localized long-term beneficial effects from enhancing and expanding protection of this area.

Expansion of the Research Natural Area would not affect grazing, except for the slight adjustment to the western boundary. As in alternative A, grazing and livestock trailing would continue to be prohibited in the Research Natural Area. Because there would be no loss of actual grazing area as a result of the changes, there would be no effect on grazing.

ADDITIONAL IMPACTS FROM ALTERNATIVE B AND C

In alternatives B and C there would be an expanded focus on climate change research (for example, studying vegetation changes) to better understand changes in ecosystems over time. This could have long-term beneficial effects if changes in climate occur faster than anticipated and could direct potential mitigation, if necessary, to address these effects. Long-term beneficial effects could also result if the Reserve is successful in working with the Idaho Department of Fish and Game to prohibit hunting in the Research Natural Area.

ADDITIONAL IMPACTS FROM ALTERNATIVE C

In addition to beneficial effects identified in alternatives B and D, there would continue to be negligible to minor adverse effects from existing research and recreational activities, combined with localized minor to moderate long-term beneficial effects from protecting a larger area from development.

The expanded Research Natural Area in alternative C would also allow for enhanced research opportunities on landscape-scale natural resources topics, including climate change. The expanded Research Natural

Area would provide additional research opportunities, including paired vegetation studies to compare and contrast plant and animal adaptation to changing natural conditions. Opportunities for research could offer long-term minor beneficial effects by facilitating a better understanding of wildlife and wildlife habitat, which could indirectly benefit protection of plants and wildlife, as well as other resources. Although a better understanding of the boundary of the Research Natural Area would also occur in alternatives B and D from a slight expansion, alternative C would potentially offer more opportunities for research from a larger Research Natural Area.

MEASURES TO AVOID, MINIMIZE, OR MITIGATE IMPACTS

Measures to minimize impacts on the Research Natural Area would be the same as identified in other resource sections throughout this document. In addition, the following measure would be used:

- Use permits to ensure that use is consistent with the RNA purpose of being managed for nonmanipulative geologic or biological research and education.

CUMULATIVE IMPACTS

See “Land Use” section.

CONCLUSION

Alternative A would continue to have long-term minor adverse and long-term minor to moderate beneficial effects. Alternative C would avoid most of the adverse effects related to managing the Reserve along section lines, rather than terrain boundaries, while alternatives B and D would result in protection of more key resources within the Research Natural Area. As a result, alternatives B–D would avoid adverse effects that would occur in alternative A, while contributing long-term beneficial effects. Greater beneficial effects in alternatives C and D would occur because of the increased area in the Research Natural Area Zone that would enhance protection for some sensitive species.

UNAVOIDABLE ADVERSE IMPACTS

The historic pattern of land use within the Reserve is a moderate unavoidable adverse impact that has left a mark on the distribution and abundance of native vegetation and plant communities over time, including converting native vegetation communities to agricultural cropland and converting these same areas and homesteads to rangeland for livestock grazing. This pattern of land use has affected evidence of the California Trail, the key resource for which the Reserve was established. This change in land use began at the end of the emigration period and continued through the homesteading era, when lands were divided by fences, and homesites, ranches, and croplands were developed. As described in other sections, these impacts can still be seen in the Reserve landscape today and would continue to be present under all alternatives. Development of recreational facilities has also contributed to unavoidable adverse impacts, although these facilities also allow visitors to experience historic and natural resources and recreational opportunities within the Reserve that would otherwise be unavailable. Minor long-term beneficial effects, would be contributed by alternatives C and D with expansion of the boundary of the Reserve to protect additional natural and cultural resources. Some of these resources could eventually be restored to their historic appearance, such as along the California Trail in alternatives C and D and through the potential use of fire in alternatives B–D.

RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Most of the land within City of Rocks would remain open and unaltered by development under all alternatives. Because the Reserve is a unit of the national park system, proposed actions within the Reserve have been designed with long-term use in mind. Therefore the area is, by definition, one that would be preserved in perpetuity. Nonetheless, the range of visitor use facilities that are available under alternative

A, or that would be available under alternatives B, C, or D, are those that appeal to and would continue to be used by the current range of visitors to the Reserve, including for camping, hiking, climbing, mountain biking, horseback riding, and other activities.

Although learning about the Reserve has become an online activity for many, the provision of a small visitor center in alternatives A and B (with a larger facility that could potentially be constructed in alternative A), as well as facilities of varying sizes in alternatives C and D, would continue to provide a place for visitors to be welcomed to the Reserve and obtain onsite information from staff. As proposed in alternatives C and D, and in a future scenario of alternative A, visitors could obtain after-hours information from the visitor center site, as well as within the Reserve (from wayside exhibits, interpretive trails and in the information kiosks that would be part of alternative B).

This interpretive function has continued to be important in national park units because it presents an opportunity for visitors and staff to interact, which engenders support for appropriate uses in parks and generates the understanding needed to gather public support to preserve nationally significant natural and cultural resources in parks. Based on this, what could appear to be a short-term need (such as for a building and a source of information), is actually a key ingredient in welcoming visitors to the Reserve and encouraging interaction among staff and visitors that almost without exception improves the overall visitor experience. Providing a visitor center would enhance the long-term productivity associated with the Reserve, through investments in visitor services that later result in support for the Reserve, for other national and state parks, and for a nationwide system of parks.

Management of other activities in the Reserve is also undertaken with future opportunities for research and natural and cultural resources preservation and restoration in mind. Expansion of the Research Natural Area under alternatives B–D would enhance the suitability of the expanded area for research, which could directly benefit plant and wildlife communities within the Reserve. Similarly, the proposed expansion of the boundary under alternatives C and D would add to a core protected area of the California Trail, expanding opportunities for long-term preservation of its resources. Other actions, such as proposed restoration of the Circle Creek impoundment (impoundment #1: the only one currently on public land), and the ongoing treatment and restoration of areas affected by nonnative invasive plants (under all alternatives) would enhance the long-term productivity of specific areas within the Reserve. Similarly, opportunities to reduce the actual areal impact of grazing under alternative C would also favor long-term productivity over short-term use.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Irreversible commitments of resources are actions that result in the loss of resources and cannot be reversed. Irretrievable commitments are actions that result in the loss of resources but only for a limited time.

Although development is considered long-term, the effects of development are to some degree reversible, and often could, if desired by land managers, be removed and rehabilitated or restored. Nonetheless, impacts of development remain visible on the landscape for decades, even centuries. Old roads and trails, even the wagon tracks of the emigrants, are visible following decades of disuse. If active restoration is conducted and contours are restored, however, it is possible to diminish the effects of development in some habitat types. In treed environments an old road trace would probably remain visible to the knowledgeable in perpetuity, unless a fire occurred and all the trees reverted to the same age class. Even then, compaction or physical alteration of the area, resulting in differential growth can allow the presence of an old roadbed to be detected.

Actions proposed within alternatives A–D that would “use up” resources would include removal of mature trees, excavation of soils for foundations, and importation of building materials procured elsewhere. This would often result in the loss of materials in one area and their replacement in another. To the degree that nonrenewable resources, including minerals and metals, were used, such use would preclude other uses and would be an irreversible commitment of resources, unless these could later be recycled.

Because development of new facilities would affect a very small portion of the Reserve and because these impacts are small in comparison to actions that would occur on private lands outside the Reserve, irreversible and irretrievable commitments of resources would be minor in all alternatives.

Chapter 6

Public Involvement





Chapter 6: Public Involvement

Public involvement and consultation efforts were ongoing throughout the process of preparing this draft GMP/EIS. Public involvement methods included Federal Register notices, news releases, public meetings and workshops, newsletter mailings, and website postings. This chapter provides information about each public involvement period and summarizes public comments received by the National Park Service and Idaho Department of Parks and Recreation during each phase.

PUBLIC SCOPING

The public was informed about the GMP process through a variety of ways. During summer 2009, the Reserve placed posters and flyers noting the beginning of the GMP planning process at strategic locations throughout the Reserve, and staff spoke to visitors attending summer campground talks at Smoky Mountain Campground.

On August 25, 2009, the public scoping process officially began when a Notice of Intent to prepare an environmental impact statement for the Reserve was published in the *Federal Register* (Vol. 74, No. 163).

At the end of August, the planning team, composed of NPS and Reserve interdisciplinary staff, produced and mailed *City of Rocks National Reserve Newsletter #1 Public Scoping* to approximately 250 people on the Reserve's mailing list. Copies of newsletters were also placed at the visitor center counter.

The Reserve distributed a press release on September 1, 2009, asking the public to help plan for City of Rock's future. Information about the GMP project was posted on the NPS Planning, Environment, and Public Comment (PEPC) website at <http://parkplanning.nps.gov/ciro>, and on the Reserve's homepage at <http://www.nps.gov/ciro/parkmgmt/planning.htm>. Both websites provided information regarding the Reserve's GMP and a method

for the public to submit comments. The Idaho Department of Parks and Recreation also noted the GMP planning process on their website at <http://parksandrecreation.idaho.gov/parks/cityofrocks>. Comments were received from the public until the scoping period closed on November 15, 2009.

STAKEHOLDER INVOLVEMENT

Prior to the public scoping period, the Reserve held an internal planning team workshop to identify the stakeholders and develop preliminary issues. Cassia County was contacted in February 2009 and invited to select local county representatives to participate on the GMP planning team.

The planning team held individual meetings with key stakeholder groups. Stakeholder meetings were held with public agencies, including Cassia County, the Idaho Department of Parks and Recreation, the Bureau of Land Management, and the U.S. Forest Service. Meetings were also held with the NPS Upper Columbia Basin Network Inventory and Monitoring team and scientists from the University of Idaho.

In addition, the planning team sent a letter to more than 90 stakeholder groups from agencies, organizations, government representatives, and a tribal government to encourage their participation in the public scoping meetings and to offer a separate meeting with the planning team. This included the Idaho State Historic Preservation Office, the Advisory Council on Historic Preservation, and the Shoshone-Bannock Tribes.

PUBLIC SCOPING WORKSHOPS AND WRITTEN COMMENTS

The National Park Service held five public workshops in southern Idaho in September and October 2009 to provide the public with an opportunity to meet the planning team, to

learn about the GMP planning process, and to provide comments. The workshops included a presentation on the Reserve and GMP planning process followed by facilitated group discussions. Public workshops were held in Almo, Burley, Pocatello, Boise, and Ketchum, Idaho. In total, 72 people signed in at the workshops. Comments from these workshops were posted to the PEPC website.

During the public comment period, the planning team received 27 written responses in the form of letters, emails, newsletter response forms, and web comments. In addition, two stakeholder meetings were held. On September 23, 2009, the GMP planning team met with representatives of the Sawtooth National Forest—Minidoka Ranger District and the Bureau of Land Management—Burley Field Office in Burley, Idaho. On October 22, the planning team met with the NPS Upper Columbia Basin Network in Ketchum, Idaho.

The following representatives, agencies, organizations and businesses submitted comments at the public workshops and/or through written correspondence:

Office of U.S. Congressman Mike Simpson
U.S. Environmental Protection Agency
National Park Service Trails Office
National Park Service Upper Columbia Basin Network
Bureau of Land Management, Burley Field Office
Sawtooth National Forest, Minidoka Ranger Station
Idaho State Senator Denton Darrington
Idaho Department of Parks and Recreation
Idaho Department of Fish and Wildlife
Cassia County Commission
Cassia County Road and Bridge Department
Cassia County Gateway West Task Force
ACE Fire Protection District
City of Rocks Quick Response Unit
University of Idaho
National Parks Conservation Association

Oregon-California Trails Association
Idaho Back Country Horsemen
The Access Fund
Southern Idaho Tourism
Idaho Alpine Club
Sierra Club
Sawtooth Mountain Guides
Almo Creek Enterprises
Bruesch Ranch
Fairfield Inn and Suites

In winter 2009–10, the planning team published and distributed the *City of Rocks Newsletter #2 Results of Scoping* summarizing the public comments. All of these comments were considered during the development of the GMP alternatives; however, some comments make recommendations that were outside the scope of the GMP or were infeasible due to law and policy guidance. Some comments were more appropriate for detailed implementation plans.

PUBLIC REVIEW OF THE DRAFT ALTERNATIVES

On April 1, 2011, the Reserve issued a press release inviting the public to comment on the GMP's preliminary alternatives. On that same day, the GMP planning team mailed *City of Rocks National Reserve Newsletter #3 Preliminary Alternatives* to approximately 450 people on the GMP mailing list and posted the newsletter on the NPS PEPC website. The newsletter included the GMP draft management zones, preliminary alternatives for management, and potential changes to the boundary, among other articles.

The 60-day public comment period began on April 1 and was announced in the GMP newsletter, on the City of Rocks National Reserve homepage, and through a Reserve press release. The public comment period was scheduled to end on June 1, 2011; however, the Reserve extended the comment period an additional 30 days until July 1 due to local public interest.

On April 26, the Reserve hosted a public open house in Almo, Idaho, to present the preliminary alternatives to the public. Although more attended, 19 people signed in and three pages of comments were received and posted to the PEPC website.

STAKEHOLDERS BRIEFED

The planning team met with a range of stakeholders to brief them in advance of public review on the preliminary alternatives. Agency comments were also accepted during those briefings. The Shoshone-Bannock Tribes were provided briefing materials and personally offered a formal briefing at their request (see the “Consultation” section at the end of this chapter). In addition, the planning team consulted with scientists from the Upper Columbia Basin Network on the preliminary alternatives. Agencies and county commissioners briefed during this period included the Bureau of Land Management, Cassia County Commissioners, Idaho Department of Fish and Game, Idaho Department of Lands, Idaho Department of Parks and Recreation, Idaho State Historic Preservation Office, Shoshone-Bannock Tribes, and the U.S. Forest Service.

On December 14, 2011, the *Weekly News Journal* published an article entitled “City of Rocks visitor’s center” by Jay Lenkersdorfer, who attended the Cassia County Commissioners briefing on the GMP preliminary alternatives. This article announced the publication of the preliminary alternatives newsletter and upcoming public meeting.

AGENCY AND ORGANIZATION WRITTEN COMMENTS

Altogether, during the comment period, the Reserve received more than 150 separate responses on the preliminary alternatives in the form of emails, individual letters, newsletter comment cards, and comments posted to PEPC. Approximately 83% of the letters came from Idaho and Utah, with a few letters coming from 11 other states and British Columbia.

The following agencies, local governments, universities, and nonprofit organizations sent in official comment letters:

- Idaho Department of Lands
- Cassia County Commissioners
- ACE Fire Protection District
- Cache Peak Civic Association
- Department of Geosciences, Boise State University
- City of Rocks Back Country Byway
- American Alpine Club
- Back Country Horseman
- Boise Climbers Alliance
- Idaho Conservation League
- Idaho Native Plant Society
- National Parks and Conservation Association – Northern Rockies
- The Access Fund
- Western Watersheds Project
- Bureau of Land Management

The planning team considered and discussed all comments received; however, not all comments were incorporated into the GMP alternatives. Some comments make recommendations that are outside the scope of the GMP or which were infeasible due to law and policy guidance. Some comments were more appropriate for detailed implementation plans.

LIST OF DRAFT GMP/EIS RECIPIENTS

Paper copies of the draft GMP/EIS were sent to the following: federal, state, and local agencies and officials; tribes; and businesses, institutions, and organizations. Additionally, copies were sent to 227 individuals on the mailing list.

Federal Agencies and Officials

Bureau of Land Management, Boise State Office, Boise, ID

Bureau of Land Management, Burley Field Office, Burley, ID

The Honorable James E. Risch, U.S. Senate, Washington, D.C.

The Honorable Mike Crapo, U.S. Senate, Washington, DC

The Honorable Mike Simpson, U.S. House of Representatives, Washington, DC

National Park Service, Craters of the Moon National Monument and Preserve, Arco, ID

National Park Service, Glacier National Park, West Glacier, MT

National Park Service, Hagerman Fossil Beds National Monument, Hagerman, ID

National Park Service, Minidoka National Historic Site, Hagerman, ID

National Park Service, National Trails System, Intermountain Region, Salt Lake City, UT

National Park Service, Upper Columbia Basin Network, University of Idaho, Moscow, ID

National Park Service, Whitman Mission National Historic Site, Walla Walla, WA

U.S. Environmental Protection Agency, Seattle, WA

U.S. Forest Service Minidoka Ranger District, Burley, ID

U.S. Geological Survey, Menlo Park, CA

U.S. Geological Survey, Tucson, AZ

State and Local Agencies and Officials

Representative Fred Wood, Idaho State House of Representatives, District 27, Burley, ID

Representative Scott Bedke, Idaho State House of Representatives, District 27, Oakley, ID

Senator Dean L. Cameron, Idaho State Senate, District 26, Rupert, ID

U.S. Congressman Mike Simpson, 2nd District of Idaho, Twin Falls, ID

Cassia County Commissioners, Burley, ID

Cassia County Joint School District, Burley, ID

Cassia County Road and Bridge, Burley, ID

Cassia County Sheriff, Burley, ID

City of Oakley, Oakley, ID

City of Rocks Back Country Byway Advisory Committee, Burley, ID

Idaho Department of Agriculture, Boise, ID

Idaho Department of Environmental Quality, Boise, ID

Idaho Department of Fish and Game, Jerome, ID

Idaho Department of Lands, Boise, ID

Idaho Division of Water Resources, Boise, ID

Idaho Parks and Recreation, Boise, ID

Idaho Parks and Recreation, East Region, Idaho Falls, ID

Idaho Transportation Department, Boise, ID

Tribes

Shoshone-Bannock Tribes, Fort Hall
Reservation, ID

Shoshone-Piutes Tribes, Duck Valley
Reservation, ID

Businesses, Institutions, and Organizations

Albion Normal Heritage Group, Albion, ID

Almo Creek Enterprises, Almo, ID

Archeology Department, Idaho State
University, Pocatello, ID

Audubon Society, Boise Chapter, Boise, ID

Audubon Society, Pocatello Chapter,
Pocatello, ID

Back Country Horsemen, Cache Peak
Chapter, Rupert, ID

Back Country Horsemen of Idaho,
Rupert, ID

Boise Climbers Alliance and American Alpine
Club, Boise, ID

Boise State University Department of
Geosciences, Boise, ID

Boise State University, Geology Department,
Boise, ID

Box C Ranch, Grouse Creek, UT

Brigham Young University, Idaho,
Rexburg, ID

Bruesch Ranch, LLC, Almo, ID

Cache Peak Civic Association, Almo, ID

Campus on The Grove, Albion, ID

Cassia County Historical Museum, Burley, ID

Cassia County Historical Society, Burley, ID

Castle Shadows Bed & Breakfast, Almo, ID

College of Southern Idaho, Twin Falls, ID

Durfee Hot Springs, Almo, ID

Exum Mountain Guides

Fairfield Inn & Suites, Burley, ID

Gateway Task Force, Burley, ID

Geologic Society of America, Boulder, CO

Idaho Alpine Club, Moose, WY

Idaho Cattle Association, Boise, ID

Idaho Conservation League, Boise, ID

Idaho National Pioneer Hall of Fame, Burley,
ID

Idaho Native Plant Society, Loasa Chapter,
Twin Falls, ID

Idaho Native Plant Society, Pahove Chapter,
Boise, ID

Idaho Native Plant Society, Sawabi Chapter,
Pocatello, ID

Idaho State Historic Preservation Office,
Boise, ID

Idaho State Historical Society, Boise, ID

Idaho Travel and Tourism, Boise, ID

Indian Grove Outfitters, Almo, ID

Mindoka County Museum, Rupert, ID

Mini-Cassia Chamber of Commerce,
Heyburn, ID

Mini-Cassia Search and Rescue, Burley, ID

National Parks Conservation Association,
Northern Rockies Region, Livingston, MT

Natural Conservation Service, Burley, ID

Oakley Pioneer Museum, Oakley, ID

Old Homestead Bed and Breakfast, Almo, ID

Oregon-California Trails Association, Idaho,
Independence, MO

Oregon-California Trails Association,
Northwest Chapter, Renton, WA

Pommerelle Ski Resort, Albion, ID

Rock City Mercantile, Almo, ID

Sawtooth Mountain Guides, Stanley, ID

Sawtooth Science Institute, Idaho State
University, Pocatello, ID

Southern Idaho Tourism, Twin Falls, ID

Sierra Club, Northern Rockies Chapter,
Pocatello, ID

Simplot Company, Grouse Creek, UT

South Central Idaho Recreation and Tourism
Association, Twin Falls, ID

Southern Idaho Tourism, Twin Falls, ID

Stanford University, Stanford, CA

The Access Fund, Boulder, CO

The American Alpine Club, Golden, CO

The Boise Climbers Alliance, Boise, ID

The Conservation Fund, Sun Valley, ID

The Idaho Alpine Club, Idaho Falls, ID

The National Outdoor Leadership School,
Lander, WY

University of Idaho, Moscow, ID

University of Idaho, Twin Falls, ID

Western Watersheds Project, Hailey, ID

Whitman College, Department of Geology,
Walla Walla, ID

The Wilderness Society, Boise, ID

COOPERATING AGENCIES

Under the National Environmental Policy Act, a “cooperating agency” is defined as

any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment.

State and local agencies and American Indian tribes that meet the above-mentioned criteria may also become cooperating agencies by formal agreement (Sec. 1508.5 CEQ regulations).

In August 2012, a memorandum of understanding was signed between the National Park Service and the Bureau of Land Management to enter into a cooperating agency status (Sec. 1501.6 CEQ regulations) to emphasize agency cooperation in the NEPA process. The purpose of the memorandum was to provide a framework for cooperation to facilitate the timely completion of the GMP and associated plans as needed. An advance copy of the draft GMP/EIS was submitted to the Bureau of Land Management in December 2012 for review and comment. Extensive comments were received from the Bureau of Land Management and changes were incorporated into this document.

The National Park Service and Idaho Department of Parks and Recreation operate the Reserve under a long-term cooperative agreement that outlines their roles and responsibilities with regard to planning and management. Therefore, the two did not enter into a cooperating agency agreement for the purpose of developing this GMP.

CONSULTATION

Section 106

In accordance with the National Historic Preservation Act of 1966 and the Advisory Council on Historic Preservation regulations, the Reserve must consult the Idaho State Historic Preservation Office and related organizations regarding any resource management proposal that may affect a cultural property listed on or found eligible for the National Register of Historic Places. Formal consultation for section 106 was initiated by the planning team in September 2009 during the initial scoping period for the GMP. Letters were sent to the executive director and two deputy directors at the Idaho State Historical Society in Boise. Letters included an invitation to attend stakeholder and public meetings and were accompanied by the first GMP newsletter (public scoping). At the same time, an informational letter was mailed to the Advisory Council on Historic Preservation in Washington, D.C.

In 2010, the second GMP newsletter (summary of public comments) was mailed to the Idaho State Historic Preservation Office.

On April 1, 2010, before release of the preliminary alternatives, the GMP project manager spoke to the SHPO deputy director regarding a request from the office to be more involved in the planning process. SHPO concerns about the GMP project centered around 1) climbing activities, 2) the historic landscape, and 3) level of development in the Reserve.

In December 2010, the planning team briefed the Idaho State Historic Preservation Office in Boise in advance of release of the preliminary alternatives to ensure that any requested changes were identified and considered before mailing the third GMP newsletter (preliminary alternatives) to the public. During March 2011, letters and copies of newsletter #3 Preliminary Alternatives were sent to the Idaho State Historic Preservation Office and the Advisory Council

on Historic Preservation, soliciting review of the alternatives and attendance at the April public meetings.

In late 2012, the planning team sent the Idaho State Historic Preservation Office a copy of the unpublished draft GMP for their review. In January 2013, the Idaho State Historic Preservation Office mailed the planning team comments on the draft GMP. The office's comments mainly focused on proposed development in the national historic landmark, in particular, the location of the equestrian staging area and the process for determining that location. These concerns were addressed in a meeting with the Idaho State Historic Preservation Office in Seattle in February and new language was added to the draft GMP to address these concerns.

GOVERNMENT TO GOVERNMENT CONSULTATION

Consultation with American Indian groups and organizations is the responsibility of the National Park Service. The Reserve superintendent would assist in these consultations and represent the Reserve and the National Park Service in hosting onsite visits of American Indian groups and organizations.

Shoshone-Bannock Tribes

In September 2009 during the initial scoping period for the GMP, formal consultation was initiated with the Shoshone-Bannock Tribes who are associated with City of Rocks. The National Park Service has consulted with the Shoshone-Bannock Tribes of the Fort Hall Reservation on an ongoing basis since the early 1990s when they were initially contacted about the City of Rocks National Reserve and the Bear River Massacre Site near Preston, Idaho.

The planning team sent information packets to the Chairman of the Shoshone-Bannock Tribes and the Cultural Resources Coordinator in Fort Hall, Idaho. The packets included the GMP public scoping newsletter and a letter inviting the tribe to meet separately with the planning

team regarding the GMP. On October 5, 2009, the Reserve staff followed up with a phone call to the tribe's Cultural Resources Coordinator to be sure that the packet was received and to answer any potential questions. No comments were received by the planning team.

In winter 2010, a second GMP newsletter was mailed to the Shoshone-Bannock Tribes providing a summary of public comments during the public scoping period.

On January 10, 2011, the NPS Pacific West Regional Anthropologist contacted the Shoshone-Bannock Tribes to inform them about the development of preliminary alternatives. The National Park Service then sent the tribes a briefing packet on the preliminary alternatives in advance of general public review. In March, Reserve staff followed up with a phone call to determine if there were any comments, questions, or concerns on the preliminary alternatives. No comments were received at this time.

In April 2011, during public review, the Shoshone-Bannock Tribes received printed copies of the third newsletter (preliminary alternatives). No comments were received by the National Park Service from the Shoshone-Bannock Tribes.

Shoshone-Paiute Tribes

The Shoshone-Paiute Tribes of the Duck Valley have expressed an interest in consultation about City of Rocks National Reserve as part of the general management planning process. In an October 2011 response letter to the Shoshone-Paiute Tribes, the National Park Service welcomed an opportunity to set a date for an in-person meeting.

In October 2013, Reserve and NPS staff met with the Shoshone-Bannock Tribes, the Shoshone-Paiute Tribes, the Idaho State Historic Preservation Office, the Bureau of Land Management, and the Deputy Keeper of the National Register at the Reserve. This meeting focused on the proposed traditional cultural property nomination that the Bureau

of Land Management and the tribes have been developing. During this meeting, the Reserve superintendent updated the tribes about the status of the draft GMP. Both the Shoshone-Bannock and the Shoshone-Paiute tribes received advance copies of the draft GMP for comment in November; however, no specific comments have been received to date.

Section 7

Formal consultation for section 7 was initiated by the planning team in June 2009 with the U.S. Fish and Wildlife Service and the Idaho Department of Fish and Game. Each agency was sent a letter and a GMP newsletter.

A letter was received from the U.S. Fish and Wildlife Service dated June 30, 2009, providing the National Park Service with a list of endangered, threatened, proposed, and/or candidate species and designated critical habitat in the area of the Reserve. There were no listed species reported, and no proposed species and proposed/designated critical habitat. Only one candidate species was noted, Christ's Indian paintbrush (*Castilleja christii*), near the Reserve.

On June 17, 2009, the Idaho Department of Fish and Game responded to the species request with information that has been provided in the affected environment chapter (see "Chapter 4: Affected Environment" for more information).

The USFWS website was reviewed again before publication of this DGMP/EIS. There were no additional species listed.

References and Appendixes





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ACRONYMS AND GLOSSARY

ACRONYMS

ACE Fire	Almo Connor Creek Elba Fire Protection District
AEC	Atomic Energy Commission
AHA	American Heart Association
AML	abandoned mine lands
APE	area of potential effects
AQRVs	air quality related values
ARPA	Archaeological Resources Protection Act
ASMIS	Archeological Sites Management Information System
AUM	animal unit month
BLM	Bureau of Land Management
Burke	Burke Museum of Natural History and Culture, Seattle, WA
CA	cooperative agreement
CAA	Clean Air Act
CAFO	confined animal feeding operation
CEO	compliance enforcement officer
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESU	Cooperative Ecosystem Studies Unit
CIRO	City of Rocks National Reserve
CLI	cultural landscape inventory
CLIP	Climate Leadership in Parks
CMAQ	Community Multi-scale Air Quality Model
CMP	comprehensive management plan
CPCA	Cache Peak Civic Association
CRSP	Castle Rocks State Park

CSCR	Cassia Silent City of Rocks
CWPPs	community wildlife protection plans
CXT	concrete vault toilet
dB	decibels
dBA	A-weighted decibel
DCP	development concept plan
DG	disintegrated granite
DOE	U.S. Department of Energy
DOI	U.S. Department of the Interior
DPS	Distinct Population Segment
EA	environmental assessment
EIS	environmental impact statement
EMTB	emergency medical technician basic
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FLPMA	Federal Land and Policy Management Act
FONSI	Finding of No Significant Impact
FMP	fire management plan
FMSS	Facility Management Software System
FTE	full-time equivalent
GMP	general management plan
GRD	National Park Service, Geologic Resources Division
Hagerman	Hagerman Fossil Beds National Monument
HPZ	historical preservation zone
HRS	historic resource study

ICDC	Idaho Conservation Data Center
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDPR	Idaho Department of Parks and Recreation
I&M	inventory and monitoring
IMPROVE	Interagency Monitoring of Protected Visual Environments
ISBLC	Idaho State Board of Land Commissioners
kg/ha	kilograms per hectare
LCS	List of Classified Structures
mg/L	milligrams per litre
Mm ⁻¹	inverse megameters
g/m ³	micrograms per cubic meter
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
msa	stellar magnitudes per square arc second
MW	megawatt
mya	million years ago
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHL	national historic landmark
NHPA	National Historic Preservation Act of 1966
NHT	national historic trail
NNL	national natural landmark
NOI	Notice of Intent

NOLS	National Outdoor Leadership School
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NSP	Natural Sounds Program
NTCHS	National Technical Committee for Hydric Soils
OPDMDs	other power-driven mobility devices
PEPC	NPS Planning, Environment, and Public Comment website
PILT	payment-in-lieu-of-taxes
PM	particulate matter
PM ₁₀	particulate matter less than 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PMIS	Project Management Information System
ppb	parts per billion
PPE	personal protective equipment
PRISM	Parameter-Elevation Regressions on Independent Slopes Model
QRU	Quick Response Unit

Reserve	City of Rocks National Reserve
RAWS	remote automated weather stations
RCRA	Resource Conservation and Recovery Act
RMCO	Rocky Mountain Climate Organization
RNA	research natural area
ROD	Record of Decision
R&PP	Recreation and Public Purposes (BLM lease)
RV	recreational vehicle
SHPO	Idaho State Historic Preservation Office
Tribes	Shoshone-Bannock Tribes
UCBN	NPS Upper Columbia Basin Network
UCBN I&M	Upper Columbia Basin Network Inventory and Monitoring Program
UNFCCC	United Nations Framework Convention on Climate Change
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
YCC	Youth Conservation Corps

GLOSSARY

A

A-weighted decibel: a unit that measures sound pressure, adjusted to the A weighting scale, which provides a formula for discounting sounds at low (<1 kHz) and high (> 6 kHz) frequencies.

accessibility: the provision of NPS programs, facilities, and services in ways that include individuals with disabilities, or makes available to those individuals the same benefits available to persons without disabilities.

acoustical environment: the physical sound resources at a particular location, regardless of audibility. The acoustical environment may include wildlife, waterfalls, wind, rain, and cultural or historic sounds.

adaptive management: adaptive management is a systematic process for continually improving

management policies and practices by learning from the outcomes of operational programs.

affected environment: existing natural, cultural, and social conditions of an area that are subject to change, both directly and indirectly, as a result of a proposed human action.

aggradation: the process by which a stream's gradient steepens due to increased deposition of sediment.

air quality designations: designated under the Clean Air Act, Class I areas are those areas that are afforded the highest level of protection from air pollutants. Mandatory Class I areas were designated by Congress and include international parks, national wilderness areas or national memorial parks larger than 5,000 acres, or national parks larger than 6,000 acres, that were in existence (or authorized) on August 7, 1977. Class II areas are all areas not designated Class I where additional air pollutant inputs may be permitted up to certain levels.

alluvial fan: a triangular deposit of sediment left by a stream that has lost velocity where it exits a narrow mountain valley onto a more gently sloping plain or broad valley.

alluvium: a deposit of sediment left by a stream along its channel or floodplain.

Almo Pluton: the name of a granite intrusion in the Albion Mountains.

alternatives: sets of management elements that represent a range of options for how or whether to proceed with a proposed project.

amphibolite: a metamorphic rock consisting mainly of amphibole (shiny, black, oriented needle-shaped crystals) and plagioclase minerals with little or no quartz.

animal unit month: the amount of forage needed by an "animal unit" grazing for one month based on a forage allowance of 26 pounds per day. The animal unit is typically defined as one mature 1,000-pound cow and her suckling calf.

anticline: a convex upward fold of rock layers, the central part of which contains the oldest layer of rock. The crest of the fold is the fold axis. If the fold plunges at both ends, then it is referred to as a structural dome, which can be either symmetrical (circular) or asymmetrical (elongated).

anuran: one of the orders of amphibians characterized by the absence of a tail, as the frogs and toads.

appropriate use: a use that is suitable, proper, or fitting for a particular park, or to a particular location within a park.

archean: the earlier part of Precambrian time.

archeology: the scientific study, interpretation, and reconstruction of past human cultures from an anthropological perspective based on the investigation of the surviving physical evidence of human activity and the reconstruction of

related past environments. Historic archeology uses historic documents as additional sources of information.

archeological resource: any material remains or physical evidence of past human life or activities that are of archeological interest, including the record of effects of human activities on the environment. An archeological resource is capable of revealing scientific or humanistic information through archeological research.

argillic: sediment and soil that contain clay.

aridisol: soils that form in deserts and xeric shrublands, forming under arid to semi-arid conditions and having a low concentration of organic matter.

artesian: ground water that is confined under hydrostatic pressure.

B

Basin and Range province: a large geographic region characterized throughout by a common physiography, in this case block faulted mountain ranges separated by down-dropped basins, and differing significantly from adjacent areas.

Backcountry: primitive, undeveloped portions of park units, some of which may be managed as “wilderness.”

biome: a large naturally occurring community of flora and fauna occupying a major habitat.

biotic crust: a biological soil crust composed of living cyanobacteria, green algae, brown algae, fungi, lichens, and/or mosses. Commonly found in arid regions around the world, cryptobiotic soils go by many names, including cryptogamic, microbiotic, or microphytic soils or crusts. Soil crusts are important members of desert ecosystems and contribute to the well-being of other plants by stabilizing sand and dirt, promoting moisture retention, and fixing

atmospheric nitrogen. Because of their thin, fibrous nature, cryptobiotic soils are extremely fragile systems.

bornhardt: a dome-shaped granite-gneiss monolith formed by weathering and erosion, usually in arid and semi-arid climates.

borrow pit: an excavated area where sand or gravel has been removed.

Bortle Dark-Sky Scale: a qualitative scale relying on visual appearance to determine which of the 1 (pristine) to 9 (urban) classes a night sky falls within.

C

candidate species: species not currently protected under the Endangered Species Act but under consideration by the U.S. Fish and Wildlife Service for addition to the list of federally threatened or endangered species.

carbonates: a class of minerals and rocks containing anionic CO₃ bonded to one or more cations, most commonly calcium and magnesium.

Castle Rocks Interagency Recreation Area: includes 480 acres of the Sawtooth National Forest (Minidoka Ranger District), 400 acres of the Bureau of Land Management’s Burley Field Office (Twin Falls District), and 1,420 acres of the Idaho Department of Parks and Recreation’s Castle Rocks State Park.

Cenozoic: an era of geologic time beginning with the Tertiary period.

cirque: a deep, steep-walled, generally flat-floored, semi-circular basin eroded out of a mountain by a glacier, usually forming a blunt upper end of an alpine valley; shaped like an amphitheater.

climate change: refers to any distinct change in measures of climate lasting for a long period of time. In other words, “climate change” means major changes in temperature, rainfall, snow,

or wind patterns lasting for decades or longer. Climate change may result from 1) natural factors, such as changes in the sun's energy or slow changes in the earth's orbit around the sun, 2) natural processes within the climate system (such as changes in ocean circulation), 3) human activities that change the atmosphere's make-up (e.g., burning fossil fuels) and the land surface (such as cutting down forests, planting trees, building developments in cities and suburbs).

Code of Federal Regulations (CFR): a publication that codifies the general and permanent rules or regulations published in the Federal Register by the executive branch departments and agencies of the federal government and which carry the force of law. The citation "36 CFR 1.1" refers to part 1, section 1, of title 36.

colluvium: unconsolidated, heterogeneous soil and/or rock material found on hillslopes resulting from mass wasting under the influence of gravity.

commercial service: any visitor-related service, activity, or facility for which compensation, monetary or otherwise, is exchanged. By law, all commercial services in parks must be authorized by the superintendent. Commercial services can originate within the park or outside.

community: any grouping of populations of different organisms that live together in a particular environment.

conserve: to protect from loss or harm; preserve. Historically, the terms conserve, protect, and preserve have come collectively to embody the fundamental purpose of the National Park Service—preserving, protecting and conserving the resources contained within the national park system.

competent: a geological term that describes how well annealed a rock is; it means well indurated.

consultation: a discussion, conference, or forum in which advice or information is sought or given, or information or ideas are exchanged.

cove: a topographic hollow, often rounded, that is surrounded by mountains and accessed through water gaps and low passes through the mountains.

crustal: pertaining to the outermost layer of an exposed rock surface.

cultural landscape: cultural landscapes are defined as areas that reflect human adaptation and use of natural resources during one period or over time, as expressed in the way that land is organized and divided into patterns of settlement, land use, circulation systems, and structures. Cultural landscapes may be composed of a series of historic districts or may be the landscape associated with one district.

cultural resource: an aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places; and as archeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

D

defile: a narrow passage, gorge, or notch.

dispersed camping: camping on public lands away from developed recreation facilities. Dispersed campsites are undeveloped, and are generally not signed as campsites. These sites may or may not have a rock fire ring and will not have public tables or restrooms. Most of BLM-managed lands are open to dispersed camping, unless signed otherwise and as long as the use does not conflict with other authorized uses such as in areas that are posted as being "closed to camping" or in some way adversely affects wildlife species, livestock, or natural or cultural resources.

desired future conditions: the future condition of resources needed to meet a management objective. Desired future

conditions are based on ecological, social, and economic considerations during the land and resource management planning process.

developed area: an area managed to provide and maintain facilities (such as roads, campgrounds, and housing) that serve park staff and visitors. It includes areas where park development or intensive use may have substantially altered the natural environment or the setting for culturally significant resources.

dikes: veins of igneous rock intruded into a host rock.

dome: a round or oval bulge on the Earth's surface, containing the oldest section of rock in its raised, central part.

dryland farming: a mode of farming for nonirrigated cultivation of dry lands, practiced in regions of slight or insufficient rainfall, that relies mainly on tillage methods rendering the soil more receptive of capturing and conserving moisture and on the selection of suitable crops based on the timing of the predominant rainfall in relation to the seasons.

duripan: a horizon in a mineral soil that is characterized by cementation by silica.

E

easement: a right or privilege one may have on another's land. For example, an easement may allow a utility company to build and maintain electrical transmission lines through another landowner's property, but take no other actions beyond those defined in the easement.

echolocation: the location of objects by reflected sound, in particular that used by animals such as dolphins and bats.

ecoregion: a biological subdivision of the earth's surface delineated by the flora and fauna of the region.

ecosystem: an arrangement of living and non-living things and the forces that move them. Living things include plants and animals. Non-living parts of ecosystems include rocks and minerals. Weather and wildland fire are two of the forces that act within ecosystems.

Elba Quartzite: the name of a rock formation (layer) in the Albion Mountains composed of metamorphosed quartz sandstone.

endangered species: plant and animal species that are in danger of extinction throughout all or a significant portion of their range. Endangered species are identified by the Secretary of the Interior in accordance with the Endangered Species Act of 1973.

Enlarged Homestead Act of 1909: one of the many homestead acts that gave an applicant ownership of land, typically called a "homestead," at little or no cost. The 1909 act increased the acreage from 160 to 320 acres.

environmental impact statement (EIS): a public document, required under the National Environmental Policy Act that identifies alternatives and analyzes their effects on the human environment.

erosion: the wearing away of land surface either by natural chemical or physical processes (including water, wind, or ice) or human or animal activities.

exclosure: an area from which unwanted animals are excluded.

executive orders, memoranda, or proclamations: regulations having the force of law issued by the President of the United States to the executive branch of the federal government.

exfoliation joints: the type of fracture or jointing formed by pressure-release; expansion joints.

extirpation: local extinction or the condition of a species that ceases to exist in the chosen geographic area of study, though it still exists elsewhere.

F

fauna: the animal life of a region or geological period.

Federal Land Policy and Management

Act of 1976 (FLPMA): the Bureau of Land Management manages land under the Federal Land Policy and Management Act of 1976, as amended. The Federal Land Policy and Management Act is the BLM's "organic act" that establishes the agency's multiple-use mandate to serve present and future generations.

Federally listed species: a species, subspecies, or distinct vertebrate population segment that has been added to the federal lists of endangered and threatened wildlife and plants as they appear in the Code of Federal Regulations.

fire management activities: includes fire planning; management strategies, tactics, and alternatives; prevention; preparedness; and education that addresses the role of mitigation, post-fire rehabilitation, fuels reduction, and restoration activities in fire management.

fire management plan: a strategic plan that defines a program to manage wildland fires based on an area's approved land management plan. Fire management plans must address a full range of fire management activities that support ecosystem sustainability, values to be protected, protection of firefighters and public safety, public health, and environmental issues, and must be consistent with resource management objectives and activities of the area.

fire regime: the combination of fire frequency, predictability, intensity, seasonality, and extent characteristics of fire in an ecosystem.

floodplain: the area surrounding a stream subject to flooding when the stream overflows its banks at times of high water, the size of which is usually described as some interval of recurrence (10, 20, 50, 100, or 500 years).

fluvial: of or pertaining to the flow and action of a stream or river.

flora: plant or bacterial life forms of a region or geological period.

forb: a herbaceous flowering plant other than a grass.

fossiliferous: adjective describing a rock that contains fossils.

foundation document: a document that begins a national park unit's planning process and sets the stage for all future planning and decision-making by identifying the unit's mission, purpose, significance, special mandates, and broad mission goals. It is incorporated into a unit's general management plan, but may also be produced as a stand-alone document for a unit.

free rock-climbing: the most commonly used method to ascend climbs refers to climbs where the climber's own physical strength and skill are relied on to accomplish the climb.

frontcountry: areas of a park that are easily accessible to visitors (as opposed to backcountry) and are more frequently used, often by single-day visitors. The frontcountry contains developed areas and is generally located along or accessed by transportation corridors.

G

gateway community: a community that exists in close proximity to a unit of the national park system, whose residents and elected officials are often affected by the decisions made in the course of managing the park unit, and whose decisions may affect the resources of the park. Because of this, there are shared interests and concerns regarding decisions. Gateway communities usually offer food, lodging, and other services to park visitors. They also provide opportunities for employee housing, and a convenient location to purchase goods and services essential to park administration.

geographic information system (GIS): both a database designed to store geographic data and a set of computer operations that can be used to analyze the data.

geologic resources: features produced from the physical history of the earth, or processes such as exfoliation, erosion and sedimentation, glaciation, karst or shoreline processes, seismic, and volcanic activities.

geomorphic: pertaining to the form or features of the Earth's surface; pertaining to geomorphology.

geothermal: pertaining to heat derived from within the Earth.

general management plan (GMP): a plan that clearly defines direction for resource preservation and visitor use in a park and serves as the basic foundation for decision making. General management plans are developed with broad public involvement.

GHG sources: natural and man-caused sources of greenhouse gases.

gneiss: a foliated metamorphic rock marked by bands of coarse grained, light-colored minerals such as quartz and feldspar that alternate with bands of finer grained, or elongated dark-colored minerals.

granite core: the inner or central part of a convex upward fold of rock layers that has been intruded with granite in its center.

Green Creek Complex: the name of rock formation in the Albion Mountains consisting of an assemblage of different rock types (granite gneiss, amphibolite schist).

groundwater: water below the ground surface filling voids in soil or rock layers. The source of groundwater is precipitation (rain, snow, or glacial melt) that has percolated downward from the surface.

grus: an accumulation of angular, coarse-grained fragments resulting from the granular disintegration of crystalline rocks, especially granite, generally in an arid or semiarid region.

grussic sand: an accumulation of sand derived from the granular disintegration of granitic rock, whether weathered in place or transported and redeposited.

grussic regolith: a thick accumulation of unconsolidated sediment that usually weathered in place from its parent rock, in this case, of granitic origin.

H

habitat: the natural abode of an organism, including all biotic, climatic, and all factors affecting its life.

head box: a head box is a wooden or concrete box built over a spring to keep livestock from trampling and compacting the wet soil around the spring and deteriorating the water quality. Spring water then collects in the head box (kind of like a well) and a pile siphons off the water and transports it to a water trough or stock tank.

historic district: a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, landscapes, structures, or objects, united by past events or aesthetically by plan or physical developments.

historic property: a district, site, structure, or landscape significant in American history, architecture, engineering, archeology, or culture; an umbrella term for all entries listed or eligible for listing in the National Register of Historic Places.

hogback: an elongated, narrow, sharp-crested ridge formed by the outcropping edges of very steeply inclined or highly tilted resistant rocks, usually greater than 20 degrees inclination.

Holocene: the second epoch of the Quaternary Period, beginning approximately 10,000 years ago and continuing to the present time.

homestead act: one of three U.S. federal laws that gave an applicant ownership at no cost of farmland called a "homestead" – typically 160 acres of undeveloped federal land west of the Mississippi River.

hydrocarbons: any organic compound consisting of hydrogen and carbon.

hydrophytic: pertaining to a plant that either grows in water, either submerged, emergent or floating, or that requires large quantities of water for its growth.

hydrothermal: of, or pertaining to, the actions or products of heated water, such as a mineral deposit precipitated from a hot aqueous solution—for instance, mineral deposits around hot springs.

I

impact: the likely effect of an action or proposed action upon specific natural, cultural or socioeconomic resources. Impacts may be direct, indirect, individual, cumulative, beneficial, or adverse.

impact topics: specific natural, cultural, or socioeconomic resources that would be affected by the proposed action or alternatives (including no action). The magnitude, duration, and timing of the effect on each of these resources is evaluated in the impact section of an environmental assessment or an environmental impact statement.

impairment: an impact on any park resource or value may constitute an impairment, but would be more likely to do so to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is necessary to fulfill specific purposes identified in the park or identified as a goal in the park's general management plan or other relevant NPS planning documents.

impoundment: a pool of water formed by a dam or pit, to supply water for livestock and/or wildlife and to control gully erosion.

indigenous: a species that occurs naturally in an area; a synonym for native species.

inselberg: a prominent, steep-sided, usually smooth and rounded residual knob rising abruptly from and surrounded by an extensive and nearly level lowland, typically occurring in arid and semi-arid regions; a mountain island.

integrity: the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period.

interagency: coordination, collaboration, and communication among cooperating agencies.

invasive plant/species: generally, this term refers to a subset of plants or animals that is introduced to an area, survives, and reproduces, and causes harm economically or environmentally within the new area of introduction. Invasive species displace native species and may have the ability to cause large-scale changes in an ecosystem. A nonnative plant that has the ability to spread in existing growing conditions outside of its native habitat.

Inventory and Monitoring Program: an NPS initiative to acquire the information and expertise needed by park managers in their efforts to maintain ecosystem integrity in the approximately 270 national park system units that contain significant natural resources.

L

light pollution: the illumination of the night sky caused by artificial light sources, decreasing the visibility of stars, and other natural sky phenomena. Also includes other incidental or obtrusive aspects of outdoor lighting such as glare, trespass into areas not needing lighting, alternation of nighttime landscape, and negative impact on ecosystems.

lightscape: a natural lightscape is defined as those natural resources and values that exist in the absence of human-caused light.

lithic: of or relating to stone.

lithic scatters: a surface scattering of flaked stone material that is evidence of primitive tool making.

loess: a widespread homogenous, unconsolidated blanket deposit consisting primarily of silt that is produced by the erosion of outwash and transported and redeposited by wind.

M

management zone: a geographical area for which management directions have been developed to determine what can and cannot occur in terms of resource management, visitor use, access, facilities or development, and park operations. Each zone has a unique combination

of resource and social conditions and a consistent management direction. Different actions are taken by the National Park Service in different zones.

Memorandum of Agreement or Memorandum of Understanding: short written statements outlining the terms of an agreement, transaction, or contract between two or more parties. Memorandums of understanding tend to be the over-arching pledge of cooperation, while memorandums of agreement tend to specify exchange of funds or services.

metamorphic rock: a type of rock that has undergone chemical or structural changes when subjected to tremendous heat and/or pressure.

metasedimentary: of, or pertaining to, metamorphic rocks of sedimentary origin.

metates: a stone block with a shallow concave surface for grinding corn or other grains.

micro-seismicity: of, or pertaining to, small scale earthquakes or Earth vibrations.

Miocene: an epoch of the upper Tertiary period.

mitigation: a modification of a proposal to lessen the intensity of its impact on a particular resource. Actions can be taken to avoid, reduce, or compensate for the effects of environmental damage.

mollisol: a dark, thick upper soil horizon.

montmorillonitic: of, or pertaining to, a common class of clay minerals derived from the chemical alteration of feldspars; known to shrink and swell upon drying and wetting.

moraine: a geomorphologic name for a landform composed mainly of unsorted, unstratified, and unconsolidated sediment that has been deposited by a glacier.

morphometry: the measure and mathematical analysis of the configuration of the Earth's surface and of the shape and dimensions of its landforms.

multi-pitch climb: the ascent of climbing routes with one or more stops at a belay station. Each section of actual climbing between stops at the belay stations is called a pitch.

muscovite: a potassium alumino-silicate mineral of the mica group. It is usually colorless, silver, or pale brown and lustrous. It is platy and flakes into thin brittle sheets along cleavage planes.

mycorrhizae: a symbiotic mutualistic association between a fungus and the roots of a vascular plant. The fungus colonizes the host plant's roots and is an important component of soil life and soil chemistry. The plant provides the fungus with carbohydrates and the fungus provides the plant with more water and mineral nutrients due to its greater absorption capabilities.

N

National Ambient Air Quality Standards: allowable concentrations of air pollutants in the ambient (public use) air as specified in 40 CFR 50.NAAQS and based on air quality criteria. These are divided into primary and secondary standards, which allow for adequate margins of safety to protect the public health and welfare.

National Environmental Policy Act (NEPA): an act of Congress passed in 1969 declaring a national policy to encourage productive and enjoyable harmony between people and the environment, to promote efforts to prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of people, and to enrich the understanding of the ecological systems and natural resources important to the nation, among other purposes.

national historic landmark: the highest level of distinction for a cultural property in the National Register of Historic Places.

national natural landmark: national natural landmarks are nationally significant natural areas designated by the Secretary of the Interior. To be nationally significant, a site must be one of the best examples of a type of biotic community or geologic feature in its physiographic province.

National Park Service Organic Act of 1916: the National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration.

national park system: the sum total of the land and water now or hereafter administered by the Secretary of the Interior through the National Park Service as park, monument, historic site, parkway, recreational area, or other purposes.

Native American consultation: consultation required by various laws, regulations, executive orders and policies relative to indigenous peoples who may have traditional or contemporary interests in the lands now occupied by parks. Consultation done in compliance with legal requirements is considered to be government-to-government consultation when federally recognized American Indian tribes and Alaska Natives are involved.

native species: a species that occurs naturally in an area, and that has not been introduced by humans either intentionally or unintentionally. A synonym for indigenous species.

natural quiet: refers to the state of having only natural sources of sound; wind, rustling leaves, water, and animal calls are examples.

night sky: a sky free of artificial light sources and light pollution.

No-Action Alternative: the most likely condition expected to exist in the future if current management continues unchanged.

noncalcareous: said of a substance, usually a rock, that does not contain calcium carbonate.

nonnative species: along with “introduced species” and “nonindigenous species,” this is one of the most commonly used terms to describe a plant or animal species that is not originally from the area in which it occurs. Similar terms include “alien species,” “exotic species,” and “foreign species.” This term has also been defined as a species whose presence is due to intentional or unintentional introduction as a result of human activity.

non-use (grazing lands): BLM grazing applications for temporary non-use based on permittee requests are processed on an annual basis. There is no charge unless the permittee has not filed an application prior to the billing process. BLM regulations state that a permittee can be in temporary non-use for up to 3 consecutive years. The Bureau of Land Management can place an allotment into conservation non-use for 10 years. Neither case changes the status of the allotment that has been identified in the land use plan as a grazing allotment. Other permittees/public can file applications to use the grazing preferences in allotments in temporary nonuse status.

Notice of Intent: a notice in the Federal Register of the intent to prepare an environmental impact statement on a proposed action.

NPS Management Policies 2006: guiding principles and procedures that set the framework and provide direction for NPS management decisions. NPS policies are guided by and consistent with the U.S. Constitution, public laws, executive proclamations and orders, and regulations and directives from higher authorities. Policies translate these sources of guidance into cohesive directions. Management Policies 2006 (NPS 2006) is applicable across the National Park Service. Director’s orders supplement and may amend Management Policies 2006.

NPS Organic Act: in 1916, the National Park Service Organic Act established the National Park Service to “promote and regulate use of parks” and defined the purpose of the national parks as “to conserve the scenery and natural and historic objects and wild life therein and to provide for the enjoyment of the same in a manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

O

Oligocene: an epoch of the lower Tertiary period. A geologic period that extends from about 34 million to 23 million years before the present. The Oligocene follows the Eocene epoch and is followed by the Miocene epoch.

orogeny: the process by which rock structures within mountains were formed, including folding, faulting, thrusting, plastic folding, metamorphism, and plutonism.

orographic: pertaining to the lifting of an air current as it passes up and over a mountain.

P

Pachic Haplocryolls: one of the 25 detailed soil map units for City of Rocks National Reserve. Other map units are Conneridge, Hymas, Howcan, Hutchley, to name a few.

Paleozoic: the earliest era of after the Precambrian period.

panhole: a very shallow, flat-bottomed hollow on the upper surface of a rock ranging in size from a few centimeters to several meters.

park: any unit of the national park system, no matter what its title designation is (such as national monument, national battlefield, national historical park, national historic site).

pegmatite: a coarse-grained granitic rock with exceptionally large crystals, formed from a magma that contained a high proportion of water.

pinnacle: a tall, very slender, tapering or pointed tower or pillar of rock.

pitons: a peg or spike driven into a rock or crack to support a climber or a rope.

Planning, Environment, and Public

Comment (PEPC) System: an online database designed to facilitate the project management process in conservation planning and environmental impact analysis. It assists NPS employees in making informed decisions with regard to a number of compliance issues throughout the planning, design, and construction process.

planning: an interdisciplinary process for developing short- and long-term goals and alternatives for visitor experience, resource conditions, projects, facility type and placement, and other proposed actions.

Pleistocene: the first epoch of the Quaternary Period, beginning 2 million to 3 million years ago and ending approximately 10,000 years ago.

pluton: an igneous intrusion, usually of granitic rock, that may be exposed upon weathering of the overlying rock layers.

population: a group of potentially interbreeding individuals of the same species found in the same place at the same time.

porosity: the percentage of a soil, rock, or sediment's volume that is made up of pores (air space).

Precambrian: the first era of geologic time, preceding the Paleozoic.

prehistoric: of, relating to, or existing before recorded history.

prescribed fire: any fire ignited by management actions to meet specific objectives.

preservation: the act or process of applying measures to sustain the existing form, integrity, and material of a historic structure, landscape, or object. Work might include preliminary measures to protect and stabilize the property, but generally focuses on the ongoing preservation, maintenance, and repair of historic materials and features rather than extensive replacement and new work (NPS DO-28).

projected implementation costs: a projection of the probable range of recurring annual costs, initial one-time costs, and life-cycle costs of plan implementation.

Proterozoic: a more recent subdivision of the Precambrian.

public involvement (also called public participation): the active involvement of the public in NPS planning and decision-making processes. Public involvement occurs on a continuum that ranges from providing information and building awareness, to partnering in decision-making.

purpose: the specific reason(s) for establishing a particular park unit.

Q

Quaternary: the second period of the Cenozoic era.

R

Record of Decision (ROD): the document that states which alternative analyzed in an environmental impact statement has been selected for implementation and explains the basis for the decision. The decision is published in the Federal Register.

rehabilitation: the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical or cultural values.

restoration: the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

research natural area (RNA): research natural areas are part of a national network of sites administratively designed to facilitate research and preserve natural features. Research natural areas are usually established in a typical example of an ecological community type, preferably one having been little disturbed in the past and where natural processes are not unduly impeded. The tract is set aside permanently and is managed exclusively for approved nonmanipulative research; i.e., research that measures but does not alter existing conditions. Activities in research natural areas are restricted to nonmanipulative research, education, and other activities that will not detract from an area's research values. A research natural area in a park is designated by the National Park Service.

residuum: in situ residue of weathered rock.

rhyolite: any of a group of felsic igneous rocks that are the extrusive equivalents of granite.

S

SUM06: the sum of the hourly average ozone concentrations equal to or greater than 0.060 ppm.

sacred sites: certain natural and cultural resources treated by American Indian tribes and Alaska Natives, and Native Hawaiians as sacred places having established religious meaning and as locales of private ceremonial activities.

saprolite: a soft, earthy, clay-rich, thoroughly disintegrated rock formed in situ by chemical weathering of igneous and metamorphic rocks.

schist: a coarse-grained, strongly foliated metamorphic rock.

scoping: public involvement is a key component of the GMP process. In this part of the process, the general public, federal, state, and local agencies and organizations are provided an opportunity to identify concerns and issues regarding the potential effects of proposed federal actions. The opportunity to provide input is called "scoping."

scrambling: is a method of ascending rocky faces and ridges. It is an ambiguous term that lies somewhere between hillwalking and rock climbing.

section 7: refers to section 7 of the Endangered Species Act of 1973, which requires federal agencies to consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service if a proposed action might affect a federally listed species or its critical habitat.

section 106: refers to section 106 of the National Historic Preservation Act of 1966, which requires federal agencies to take into account the effects of their proposed undertakings on properties included or eligible for inclusion in the National Register of Historic Places and give the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed undertakings.

Sevier orogenic belt: the name of the geologic deformations that occurred along the eastern edge of the Great Basin in Utah, and positioned between the Nevadan orogeny (Sierra Mountains) to the west and the Laramide orogeny (Rocky Mountains) to the east.

sheetwash: sediment transported by sheet flow – the overland laminar flow or downslope movement of water taking the form of a thin, continuous film over relatively smooth soil or rock surfaces and not concentrated into channels larger than rills.

significance: statements of why, within a national, regional, and systemwide context, the park's resources and values are important enough to warrant national park designation.

skarn: a Swedish mining term for limestones and dolomites that have been replaced with iron ore silicate and sulfide deposits.

soundscape: the human perception of the acoustical environment. See “acoustical environment.”

special mandates: legal mandates specific to a park unit that expand upon or contradict a park unit's legislated purpose.

species of concern: an informal term used to designate at-risk species that may be in need of targeted conservation efforts. Species of concern are not defined in the Endangered Species Act and receive no legal protection.

spire: a rock pinnacle.

sport rock-climbing: a style of climbing typically involving short (less than a rope length) routes with fixed bolt protection. Previewing and practicing a climb is common and the emphasis is on technical difficulty rather than adventure. Climbs tend to involve less physical risk and rarely continue to summits. Routes generally end at top fixed anchors where the sustained difficulty of the climb lessens or the character of the rock changes.

spray: an open fan-shaped arrangement of mica minerals in a rock as opposed to a stacked (book) arrangement.

stake: a Mormon term that means a designated geographic area of inhabitants that is divided into wards and branches.

state historic preservation officer (SHPO): an official in each state appointed by the governor to administer the state historic preservation program and carry out certain responsibilities relating to federal undertakings in the state (NPS DO-28).

strata: sedimentary rock layers.

T

talus: a pile of large rock fragments lying at the bottom of a cliff or steep slope from which they have broken off.

technical rock-climbing: climbing involving a rope and some means of protection, as opposed to scrambling or glacier travel.

tectonic: pertaining to forces and geologic events associated with the broad architecture of the upper part of the Earth's crust, whereas structural geology pertains to more localized and smaller deformation features.

Tertiary Period: a geological time interval that covers roughly the time span between the demise of the non-avian dinosaurs and the beginning of the most recent ice age, approximately 65 million to 1.8 million years ago.

threatened and endangered species: as defined in the Endangered Species Act of 1973 as amended (Public Law 93-205; 87 Stat. 884), "endangered species" is "any species which is in danger of extinction throughout all or a significant portion of its range" and a "threatened species" is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Whether a species is threatened or endangered is determined by the following factors: (1) present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, sporting, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms, or (5) other natural or human-made factors.

tor: a Celtic term for a high, isolated, craggy hill, pinnacle, or rocky peak; or a pile of rocks, much-jointed and usually granitic, exposed to considerable weathering, and often assuming peculiar or fantastic shapes, as the granite rocks standing as prominent masses on the sides and tops of hills in Devon and Cornwall, England. Results from subsurface weathering through the action of acidic ground water penetrating along joint systems, subsequently hollowed by mechanical stripping of loose material.

traditionally associated peoples: social cultural entities such as tribes, communities, and kinship units exhibiting a continued identity and associated with a specific park unit, area, or resource.

traditional cultural resource: any site, structure, object, landscape, or natural resource feature assigned traditional, legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

traditional cultural property: traditional cultural resources eligible for or listed in the National Register of Historic Places. They are resources to which American Indian tribes attach cultural or religious significance and may include structures, objects, districts, geological and geographical features, and archeology.

traditional rock climbing: a style of climbing where protection is typically placed by the leader with value placed on unpracticed ascents and higher degrees of personal risk than in sport climbing. The ascents are normally done from the ground to the top of the route and any fall or weighting of the rope generally dictates that the climber be lowered to the ground or stance to restart the climb. Traditional climbing routes are typically protected by artificial chock stones, although in areas with few cracks, bolts placed by hand by the leader during the ascent are considered acceptable. Traditional climbs are generally multi-pitch climbs and summits are common objectives.

trailing (of livestock): the controlled moving of livestock under immediate human direction.

turbidity: a measure of the optical clarity of a liquid (water). Optical clarity in water is affected by the scattering and absorption of light by suspended material, such as clay, silt, sand, and organic and inorganic particulates and plankton.

U

Unihedron sky quality meter: a meter for measuring sky brightness.

unmetamorphosed: rock that has not been metamorphosed (has not undergone chemical or structural changes due to tremendous heat and/or pressure).

U.S. Fish and Wildlife Service (USFWS): the federal agency responsible for implementing the provisions of the Endangered Species Act, including listing species, developing recovery plans, etc.

user capacity: the type and level of use that can be accommodated while sustaining the quality of park resources and visitor opportunities consistent with the purposes of the park unit. It is not necessarily a set of numbers or limits, but rather a process involving establishing desired conditions, monitoring, evaluation, and actions (managing visitor use) to ensure values are protected.

V

viewshed: the visible areas seen from identified viewpoints.

visitor experience: the perceptions, feelings, reactions, and activities of a park visitor in relationship to the surrounding environment.

visitor use: the types of recreation activities engaged in by visitors, including the type of activity, visitor behavior, timing, and distribution of use.

W

W126: the cumulative sum of hourly ozone concentrations, with hourly values weighted according to their magnitude.

watershed: an area of terrain that collects and discharges runoff to a given point. It is often used synonymously with drainage basin or catchment area.

wet deposition: particles that are removed from the air and transferred to the Earth's surface by rain, snow, clouds, or fog.

wetland: as defined by the U.S. Army Corps of Engineers, a wetland is an area inundated or saturated with surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

wilderness (designated): an area of land designated by Congress to be managed according to the Wilderness Act of 1964.

wildland: an area in which development is essentially nonexistent, except for roads, railroads, power lines, and other transportation facilities.

wildland fire: any nonstructural fire that occurs on wildlands that is not a prescribed fire.

wildland urban interface: the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

windrow: a row or berm of soil similar in appearance to mowed and raked hay before being baled.

Z

zone: see "management zone."

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Selected List of Abbreviations

BLM	Bureau of Land Management, U.S. Department of the Interior
Cassia	Cassia County, Idaho
DOJ	U.S. Department of Justice
EPA	U.S. Environmental Protection Agency
HRA	Historic Research Associations, Inc. and Amphion
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDPR	Idaho Department of Parks and Recreation
ISBLC	Idaho State Board of Land Commissioners, Idaho Department of Lands
NPS	National Park Service, U.S. Department of the Interior
NSP	Natural Sounds Program
Reserve	City of Rocks National Reserve
RMCO	The Rocky Mountain Climate Organization
UCBN	Upper Columbia Basin Network
UNFCCC	United Nations Framework Convention on Climate Change
USDA	U.S. Department of Agriculture
USDA-NRCS	Natural Resources Conservation Service, U.S. Department of Agriculture
USFS	U.S. Forest Service, U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service, U.S. Department of the Interior
USGCRP	United States Global Change Research Program

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Appendices

Appendix A: Reserve Legislation

Appendix B: Pertinent Laws, Policies, and Procedures

Appendix C: City of Rocks National Reserve Wilderness Eligibility Study

Appendix D: Rim Development Concept Plan for City of Rocks National Reserve

Appendix E: Analysis of Boundary Adjustment and Land Protection

Appendix A: Reserve Legislation

NATIONAL RESERVES		679
XVI. NATIONAL RESERVES		
1. City of Rocks		
PUBLIC LAW 100-696—NOV. 18, 1988		102 STAT. 4571
Public Law 100-696 100th Congress		
An Act		
To provide for the designation and conservation of certain lands in the States of Arizona and Idaho, and for other purposes.	Nov. 18, 1988 [S. 2840]	
<i>Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act be cited as the "Arizona-Idaho Conservation Act of 1988"</i>	Arizona-Idaho Conservation Act of 1988.	
* * * * *		
TITLE II—CITY OF ROCKS NATIONAL RESERVE		102 STAT. 4573
ESTABLISHMENT OF CITY OF ROCKS NATIONAL RESERVE		
SEC. 201. (a) There is hereby established the City of Rocks National Reserve (hereinafter referred to as the "reserve"), in order to preserve and protect the significant historical and cultural resources; to manage recreational use; to protect and maintain scenic quality; and to interpret the nationally significant values of the reserve.	Historic preservation. 16 USC 460yy.	
(b) The reserve shall include approximately fourteen thousand three hundred and twenty acres as depicted on the map entitled "Boundary Map, City of Rocks National Reserve, Idaho" numbered P30-80,005 and dated October 1987. The map shall be on file in the offices of the National Park Service, Department of the Interior and the Offices of the Governor, State of Idaho.		
(c) Within six months after the enactment of this title, the Secretary of the Interior (hereinafter in this title referred to as the "Secretary") shall file a legal description of the reserve designated under this section with the Committee on Interior and Insular Affairs of the United States House of Representatives and with the Committee on Energy and Natural Resources of the United States Senate. Such legal description shall have the same force and effect as if included in this title, except that the Secretary may correct clerical and typographical errors in such legal description and in the map referred to in subsection (b). The legal description shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior and the offices of the Governor of the State of Idaho.	102 STAT. 4574	Public information.

680

NATIONAL RESERVES

102 STAT. 4574

PUBLIC LAW 100-696—NOV. 18, 1988

PLAN AND MANAGEMENT OF RESERVE

State and local
governments.
16 USC 460yy-1.

SEC. 202. (a) To achieve the purpose of this title, the Secretary, acting through the National Park Service, in cooperation with appropriate State and Federal agencies, local units of government and local residents shall formulate a comprehensive plan for the protection, preservation, and interpretation of the reserve. The plan shall identify those areas or zones within the reserve which would most appropriately be devoted to—

- (1) public use and development;
- (2) historic and natural preservation; and
- (3) private use subject to appropriate local ordinances designed to protect the historic rural setting.

(b) Within eighteen months following the date of enactment of this section, the Secretary shall transmit the plan to the President of the Senate and the Speaker of the House of Representatives and to the Governor of the State of Idaho.

(c) At such time as the State or appropriate units of local government having jurisdiction over land use within the reserve have enacted ordinances or established regulations which in the judgment of the Secretary will protect and preserve the historic and natural features of the area in accordance with the comprehensive plan, the Secretary shall, pursuant to cooperative agreement—

- (1) transfer management and administration over all or any part of the property acquired under subsection (d) of this section to the State or appropriate units of local government;
- (2) provide technical assistance to such State or units of local government in the management, protection, and interpretation of the reserve; and

Grants.

- (3) make periodic grants, which shall be supplemental to any other funds to which the grantee may be entitled under any other provision of law, to such State or local unit of government to carry out the purposes of this title.

(d)(1) The Secretary is authorized to acquire such lands and interests as he determines are necessary to accomplish the purposes of this title by donation, purchase with donated funds, or appropriated funds, or exchange, except that the Secretary may not acquire the fee simple title to any land without the consent of the owner. The Secretary shall, in addition, give prompt and careful consideration to any offer made by an individual owning property within the reserve to sell such property, if such individual notifies the Secretary that the continued ownership of such property is causing, or would result in, undue hardship.

102 STAT. 4575

(2) Lands and waters, and interests therein, within the boundaries of the reserve which were administered by the Forest Service, United States Department of Agriculture or the Bureau of Land Management, Department of the Interior prior to the date of enactment of this title are hereby transferred to the administrative jurisdiction of the Secretary to be administered by the National Park Service in accordance with this title.

(3) Lands and interest therein so acquired shall, so long as responsibility for management and administration remains with the United States, be administered by the Secretary subject to the provisions of the Act of August 25, 1916 (39 Stat. 535), as amended and supplemented, and in a manner consistent with the purpose of this title.

NATIONAL RESERVES

681

PUBLIC LAW 100-696—NOV. 18, 1988

102 STAT. 4575

(e) If, after the transfer of management and administration of any lands pursuant to subsection (c) of this section, the Secretary determines that the reserve is not being managed in a manner consistent with the purposes of this title, he shall so notify the appropriate officers of the State or local unit of government to which such transfer was made and provide for a one hundred and eighty-day period in which the transferee may make such modifications in applicable laws, ordinances, rules, and procedures as will be consistent with such purposes. If, upon the expiration of such one hundred and eighty-day period, the Secretary determines that such modifications have not been made or are inadequate, he shall withdraw the management and administration from the transferee and he shall manage such lands in accordance with the provisions of this title.

(f) Congress finds that there are unique circumstances with respect to the water and water related resources within the Reserve designated by this title. The Congress recognizes that the management of this area may be transferred to the State of Idaho, that the State has committed to providing the water necessary to fulfill the purposes of this title, and that there is little or no water or water-related resources that require the protection of a Federal reserved water right. Nothing in this title, nor any action taken pursuant thereto, shall constitute either an express or implied reservation of water or water right for any purpose: *Provided*, That the United States shall retain that reserved water right which is associated with the initial establishment and withdrawal of the national forest lands which will be transferred to the Reserve under this title.

(g) Subject to valid existing rights, Federal lands and interests therein, within the reserve, are hereby withdrawn from disposition under the public land laws and from entry or appropriation under the mining laws of the United States, from the operation of the mineral leasing laws of the United States, and from operation of the Geothermal Steam Act of 1970, as amended.

(h) There is hereby authorized to be appropriated not to exceed \$2,000,000 to carry out the provisions of this title.

Water.

Appropriation
authorization.

Approved November 18, 1988.

102 STAT. 4612

LEGISLATIVE HISTORY—S. 2840 (S. 252) (S. 2352) (H.R. 4519):

HOUSE REPORTS: No. 100-744, Pt. 1, accompanying H.R. 4519 (Comm. on Interior and Insular Affairs) and Pt. 2 (Comm. on Veterans' Affairs).

SENATE REPORTS: No. 100-525 accompanying S. 252 (Comm. on Energy and Natural Resources), No. 100-553 accompanying S. 2352 (Comm. on Energy and Natural Resources), and No. 100-539 accompanying H.R. 4519 (Comm. on Energy and Natural Resources).

CONGRESSIONAL RECORD, Vol. 134 (1988):

July 27, H.R. 4519 considered and passed House.

Oct. 13, S. 2840 considered and passed Senate.

Oct. 20, considered and passed House, amended. Senate concurred in House amendments.

682

NATIONAL RESERVES

104 STAT. 1915

PUBLIC LAW 101-512—NOV. 5, 1990

Public Law 101-512

101st Congress

An Act

Nov. 5, 1990
[H.R. 5769]

Making appropriations for the Department of the Interior and related agencies for the fiscal year ending September 30, 1991, and for other purposes.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,** * * * *
TITLE I—DEPARTMENT OF THE INTERIOR

104 STAT. 1920

* * * * *
NATIONAL PARK SERVICE

104 STAT. 1923

* * * * *
ADMINISTRATIVE PROVISIONS16 USC 460yy-1
note.

... *Provided further*, That with respect to lands and waters under the jurisdiction of the Secretary of the Interior within the City of Rocks National Reserve established by title II of Public Law 100-696, the Secretary shall hereafter permit hunting in accordance with the otherwise applicable laws of the United States and the State of Idaho, except that he may designate zones where and periods when no hunting may be permitted for reasons of public safety, administration, floral and faunal protection and management, or public use and enjoyment: . . .

104 STAT. 1977

* * * * *
Approved November 5, 1990.LEGISLATIVE HISTORY—H.R. 5769:

HOUSE REPORTS: No. 101-789 (Comm. on Appropriations) and No. 101-971 (Comm. of Conference).

SENATE REPORTS: No. 101-534 (Comm. on Appropriations).

CONGRESSIONAL RECORD, Vol. 136 (1990):

Oct. 12, 15, considered and passed House.

Oct. 22-24, considered and passed Senate, amended.

Oct. 27, House and Senate agreed to conference report.

WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 26 (1990):

Nov. 5, Presidential statement.

114 STAT. 1870

PUBLIC LAW 106-421—NOV. 1, 2000

Public Law 106-421
106th Congress

An Act

Nov. 1, 2000
[S. 1705]

To direct the Secretary of the Interior to enter into land exchanges to acquire from the private owner and to convey to the State of Idaho approximately 1,240 acres of land near the City of Rocks National Reserve, Idaho, and for other purposes.

Castle Rock
Ranch
Acquisition Act of
2000.
16 USC 431 note.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Castle Rock Ranch Acquisition Act of 2000".

SEC. 2. DEFINITIONS.

In this Act:

(1) MONUMENT.—The term "Monument" means the Hagerman Fossil Beds National Monument, Idaho, depicted on the National Park Service map numbered 300/80,000, C.O. No. 161, and dated January 7, 1998.

(2) RANCH.—The term "Ranch" means the land comprising approximately 1,240 acres situated outside the boundary of the Reserve, known as the "Castle Rock Ranch".

(3) RESERVE.—The term "Reserve" means the City of Rocks National Reserve, located near Almo, Idaho, depicted on the National Park Service map numbered 003/80,018, C.O. No. 169, and dated March 25, 1999.

(4) SECRETARY.—The term "Secretary" means the Secretary of the Interior.

SEC. 3. ACQUISITION OF CASTLE ROCK RANCH.

(a) IN GENERAL.—Subject to subsection (b), the Secretary shall acquire, by donation or by purchase with donated or appropriated funds, the Ranch.

(b) CONSENT OF LANDOWNER.—The Secretary shall acquire land under subsection (a) only with the consent of the owner of the land.

SEC. 4. LAND EXCHANGE.

(a) IN GENERAL.—

(1) FEDERAL AND STATE EXCHANGE.—Subject to subsection (b), on completion of the acquisition under section 3(a), the Secretary shall convey the Ranch to the State of Idaho in exchange for approximately 492.87 acres of land near Hagerman, Idaho, located within the boundary of the Monument.

(2) STATE AND PRIVATE LANDOWNER EXCHANGE.—On completion of the exchange under paragraph (1), the State

PUBLIC LAW 106-421—NOV. 1, 2000

114 STAT. 1871

of Idaho may exchange portions of the Ranch for private land within the boundaries of the Reserve, with the consent of the owners of the private land.

(b) **CONDITION OF EXCHANGE.**—As a condition of the land exchange under subsection (a)(1), the State of Idaho shall administer all private land acquired within the Reserve through an exchange under this Act in accordance with title II of the Arizona-Idaho Conservation Act of 1988 (16 U.S.C. 460yy et seq.).

(c) **ADMINISTRATION.**—State land acquired by the United States in the land exchange under subsection (a)(1) shall be administered by the Secretary as part of the Monument.

(d) **NO EXPANSION OF RESERVE.**—Acquisition of the Ranch by a Federal or State agency shall not constitute any expansion of the Reserve.

(e) **NO EFFECT ON EASEMENTS.**—Nothing in this Act affects any easement in existence on the date of enactment of this Act.

Approved November 1, 2000.

LEGISLATIVE HISTORY—S. 1705:

HOUSE REPORTS: No. 106-749 (Comm. on Resources).

SENATE REPORTS: No. 106-262 (Comm. on Energy and Natural Resources).

CONGRESSIONAL RECORD, Vol. 146 (2000):

Apr. 13, considered and passed Senate.

Oct. 17, considered and passed House.



NATIONAL TRAILS SYSTEM

SEC. 3. [16USC1242] (a) The national system of trails shall be composed of the following:

- (1) National recreation trails, established as provided in section 4 of this Act, which will provide a variety of outdoor recreation uses in or reasonably accessible to urban areas.
- (2) National scenic trails, established as provided in section 5 of this Act, which will be extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass. National scenic trails may be located so as to represent desert, marsh, grassland, mountain, canyon, river, forest, and other areas, as well as landforms which exhibit significant characteristics of the physiographic regions of the Nation.
- (3) National historic trails, established as provided in section 5 of this Act, which will be extended trails which follow as closely as possible and practicable the original trails or routes of travel of national historic significance. Designation of such trails or routes shall be continuous, but the established or developed trail, and the acquisition thereof, need not be continuous onsite. National historic trails shall have as their purpose the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment. Only those selected land and water based components of a historic trail which are on federally owned lands and which meet the national historic trail criteria established in this Act are included as Federal protection components of a national historic trail. The appropriate Secretary may certify other lands as protected segments of an historic trail upon application from State or local governmental agencies or private interests involved if such segments meet the national historic trail criteria established in this Act and such criteria supplementary thereto as the appropriate Secretary may prescribe, and are administered by such agencies or interests without expense to the United States.
- (4) Connecting or side trails, established as provided in section 6 of this Act, which will provide additional points of public access to national recreation, national scenic or national historic trails or which will provide connections between such trails.

The Secretary of the Interior and the Secretary of Agriculture, in consultation with appropriate governmental agencies and public and private organizations, shall establish a uniform marker for the national trails system.

(b) For purposes of this section, the term 'extended trails' means trails or trail segments which total at least one hundred miles in length, except that historic trails of less than one hundred miles may be designated as extended trails. While it is desirable that extended trails be continuous, studies of such trails may conclude that it is feasible to propose one or more trail segments which, in the aggregate, constitute at least one hundred miles in length.

(18) The California National Historic Trail, a route of approximately five thousand seven hundred miles, including all routes and cutoffs, extending from Independence and Saint Joseph, Missouri, and Council Bluffs, Iowa, to various points in California and Oregon, as generally described in the report of the Department of the Interior prepared pursuant to subsection (b) of this section entitled "California and Pony Express Trails, Eligibility/Feasibility Study/Environmental Assessment" and dated September 1987. A map generally depicting the route shall be on file and available for public inspection in the Office of the National Park Service, Department of the Interior. The trail shall be administered by the Secretary of the Interior. No lands or interests therein outside the exterior boundaries of any federally administered area may be acquired by the United States for the California National Historic Trail except with the consent of the owner thereof.

Appendix B: Pertinent Laws, Policies, and Procedures

The following is a list of the laws, executive orders, NPS policies, and operational procedures that are most pertinent to the planning for the future protection, use, and management of City of Rocks National Reserve:

Americans with Disabilities Act of 1990

Antiquities Act of 1906

Archaeological Resources Protection Act of 1979

Cassia County Comprehensive Plan and Zoning Ordinance

Director's Order 28: Cultural Resource Management

Director's Order 77: Natural Resource Protection

Endangered Species Act

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"

Executive Order 13007, "Indian Sacred Sites"

Executive Order 13112, "Invasive Species"

Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds"

Executive Order 13443, "Facilitation of Hunting Heritage and Wildlife Conservation"

Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance"

General Authorities Act of 1970

Historic Sites Act of 1935

Idaho State Law – Title 58 (Public Lands), Chapter 5 (State Parks and State Forests)

Migratory Bird Treaty Act

National Environmental Policy Act of 1969

National Historic Preservation Act of 1966

National Historic Preservation Act (NHPA) Section 106

NHPA Section 110

NHPA Section 111

National Park Service Organic Act

National Park Service Strategic Plan

National Parks and Recreation Act of 1978

National Trails System Act

Native American Graves Protection and Repatriation Act of 1990

NHPA Section 112

NPS *Management Policies* 2006

NPS *Program Standards: Park Planning*

Redwood Act of 1978

Appendix C: City of Rocks National Reserve Wilderness Eligibility Study



United States Department of the Interior

NATIONAL PARK SERVICE
City of Rocks National Reserve
Box 169
Almo, ID 83312



IN REPLY REFER TO:

L1429 (PWR-CIRO)

01 MAR 2012

SJS:nd= 3/27/12
Tulman 4/11/12
Ruth 4/11/12
Morton
04.13.12
P.O. SELL
4.16.12
JBY
4/17/12

Memorandum

To: Director, National Park Service

Through: Regional Director, Pacific West Region
Deputy Regional Director, Resource Management & Planning

From: Superintendent, City of Rocks National Reserve

Subject: Wilderness Eligibility Assessment for City of Rocks National Reserve

This Wilderness Eligibility Assessment has been reviewed in accordance with National Park Service (NPS) Management Policies 2006 Section 6.2.1 and is addressed in the updating of the General Management Plan.

Overview of the Reserve and its Values

In the Albion Mountains of the Northern Great Basin, the Reserve is a unique geologic area with granite pinnacles and monoliths. This area has long been an oddity and wonder, especially for passing emigrants of the California Trail (1843-1882). Emigrant artist, James F. Wilkins named the area that contained these geologic features "City of Rocks" in 1849.

As early as the 1920s, City of Rocks has been recognized as an outstanding landscape worthy of national monument status due to its unique cultural resources, scenery, and potential for high quality recreation. The Idaho Legislature declared Section 36 within City of Rocks as a state park under the jurisdiction of the Idaho Lands Board on February 27, 1957. In 1964, 13,195 acres including the state park was designated a national historic landmark. Ten years later, 20,259 acres received designation as a national natural landmark. That same year, 1974, the state park was transferred to the Idaho Department of Parks and Recreation (IDPR) from Department of Lands.

The Reserve was created November 18, 1988, by Public Law 100-696, entitled the Arizona-Idaho Conservation Act. This act drew a 22-mile boundary around lands owned or managed by the USDA Forest Service, Bureau of Land Management (BLM), IDPR, and private individuals. After the approval of the Reserve's 1996 Comprehensive Management Plan, the NPS officially transferred on-site management of the Reserve to IDPR on May 2, of that year.

These 14,407 acres preserve and protect a 6.2-mile segment of the congressionally designated California National Historic Trail and the surrounding cultural landscape. That landscape also includes a portion of the

Salt Lake Alternate (of the California Trail), Mormon Battalion Trail, Kelton-Boise Stage Route, remnant trail ruts, and emigrant signatures written with axle grease. Other cultural resources include prehistoric artifacts, homesteads, irrigation and ranching improvements, and mica mines. The grazing of cattle on private lands and on seven authorized allotments in the Reserve continues today.

Elevation in the Reserve ranges from 5,720 feet (east entrance) to 8,867 feet (Graham Peak). Total relief is 3,147 feet. The geologic features have become world renown for rock climbing and academic study. The natural resources are diverse. Vegetation communities include sagebrush steppe, pinyon-juniper woodlands, mountain mahogany woodlands, and higher forest communities of aspen, sub-alpine fir, lodgepole pine, and limber pine. There are more than 498 species of plants, 142 birds, 5 amphibians, 14 reptiles, and 56 mammals documented or expected in the Reserve. Idaho's only known population of cliff chipmunks is in the Reserve and on adjacent lands. Other fauna viewed on rare occasions within or very near the Reserve include big-horn sheep, ringtail, elk, moose, and pronghorn.

Today, the Reserve offers camping, climbing, hiking, backpacking, equestrian riding, mountain biking, sightseeing, and much more. About 100,000 visitors pass through the Reserve annually, primarily between April and October. Many come from the metropolitan areas of the Wasatch Front in Utah or the populated areas of southern Idaho (Boise, Twin Falls, Pocatello, and Idaho Falls). Nearly every state is represented in visitor registers and on camping receipts — with Wyoming, California, Colorado, and Oregon most frequently listed. Foreign countries (about 15 to 20) are also represented annually. Although the Reserve is open year-round, the roads are often impassable in winter.

Summary of Public Involvement

Public involvement with respect to wilderness was addressed during the spring of 2011 as part of the General Management Plan (GMP) process.

Summary of the Wilderness Eligibility Assessment Process

CIRO Resource staff conducted field assessments on November 5, 2010. The following eligibility discussion is based on that field work and extensive knowledge of the Superintendent of this area. Staff took into consideration current Reserve boundaries, suitable size of the two zones, ownership, established recreational uses and visitation trends, current development, and cultural and natural conditions. This information was used to address the Primary Eligibility Criteria, Section 6.2.1.1, of the 2006 Management Policies. Portions of the Reserve were eliminated from consideration due to incompatible GMP zone, inconsequential size, private ownership, and/or development, including roads, trails, campsites, restrooms, fences and areas of heavy visitor use.

The remaining tracts of land with the least amount of development have been examined closely (Fig. 1), and the acreage's eligibility was evaluated for inclusion in the National Wilderness Preservation System.

Graham Peak Study Area – approximately 2,361 acres

The Graham Peak Study Area is located at the north end of the Reserve and stretches from the northwest corner (including Indian Grove) and northern boundary to south of the East Ridge and includes the Research Natural Area (RNA). The Graham Peak Study Area was considered in two separate zones: (1) Indian Grove Zone, 522 acres, and (2) East Ridge Zone, 1,839 acres. Although remote, highly scenic, and fairly wild,

currently the Indian Grove Zone does not exemplify all the characteristics of wilderness. This area has primitive roads and trails; has designated camping; and is frequented by hikers, mountain bikers, equestrian riders, campers, and hunters. This small area is also part of the large Graham Creek Grazing Allotment where summer grazing is often encountered (it does have a pole fence protecting the spring). Indian Grove was also utilized by local residents to extract lodgepoles, Christmas trees, and fire wood prior to the Reserve establishment. Some evidence of these disturbances remains, although it is possible to change stewardship strategies and perform long-term restoration and eventually achieve the characteristics of wilderness.

Despite its small areal extent, at this time East Ridge Zone eligibility is assessed, as follows:

- 1. Where the Earth and its community of life are untrammelled by man. Where man himself is a visitor who does not remain.**

No camping is allowed along the East Ridge. There are two trails that pass through the East Ridge area and mountain bikers and equestrian riders will be present on these trails. Hikers and fall deer hunters may be present on these trails as well as in off trail areas of the East Ridge. Canada thistle is present, and therefore noxious weed treatment (including herbicidal treatments) occurs. The fence that separates the RNA from the Graham Creek Grazing Allotment is on the south side of the East Ridge (see Fig. 1).

- 2. Undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation**

The East Ridge is a little visited area with breathtaking views and fascinating geological formations. However, some improvements have been made in this area. An historic wagon/jeep road running from the Bruesch Ranch to Indian Grove spans almost the entire Graham Creek study area from east to west. It is possible to traverse the road in a four wheel drive vehicle, although currently it is closed to the public. The northern boundary fence for the RNA is located on the south side of the ridge and a fence divides the Graham Creek Grazing Allotment into two pastures. A small 8'x12' metal structure sits atop Graham Peak and is referred to as the Graham Peak radio repeater station. The building houses the system, batteries, and antennas. The color of the structure was chosen to blend in with the hillside; however in the summer months, the metal can reflect light across the entire viewshed. A narrow jeep road approaches the site from the north side and lands administered by the US Forest Service. Only administrative vehicles are permitted to use the road within the Reserve boundaries.

- 3. Which generally appears to have been affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable**

Three steel post barbed wire fences in this area delineate the northern boundary of the Reserve, the RNA/Graham Creek Grazing allotment boundary, as well as divide the two pastures within the Graham Creek Grazing Allotment (see Fig. 1). The imprint of the repeater station is intrusive, and historic two-track roads are readily discernible. A restoration program could be designed to ameliorate the existing degraded conditions.

- 4. Which is protected and managed so as to preserve its natural conditions**

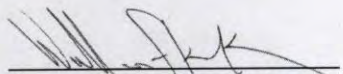
Since acquisition, the Reserve has taken steps to protect this area by managing visitor use and restoring natural conditions. Motor vehicle use is restricted to the grazing allotment permittees and Reserve staff, which has cut motor vehicle travel down substantially. Currently, this area contains a grazing allotment and the RNA which comprises most of the acreage. The RNA is protected from any ranching disturbance while the Graham Creek Allotment is managed for sustainable grazing and a back country experience. Tree cutting has been eliminated and steps have been taken to remove visible signs of logging in the area. Noxious weeds are found in the area and steps have been taken to control their spread.

5. Which has outstanding opportunities for solitude or primitive unconfined type of recreation

Opportunities for solitude are abundant in this little visited section of the Reserve despite the variety of use in this area. Hikers, mountain bikers, equestrian riders, permittees, and Reserve staff frequent the established trails. Other than the limited trails, the East Ridge is steep and difficult to access. Those who do enter this remote high country will plainly see in the distance a network of county roads and the village of Almo. The area's small size of 1,839 acres limits its ability to provide complete solitude. Some popular forms of recreation such as climbing and backcountry camping are naturally restricted by the RNA designation that would remain.

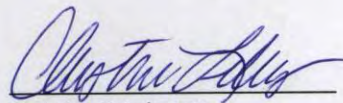
Conclusion

The Wilderness Eligibility for the Reserve conducted by staff determined that lands within the boundary fail to meet the requirements necessary to qualify for the Congressional designated National Wilderness Preservation System. Although by itself Reserve lands do not of meet the criteria, the area could contribute to a larger area of potential wilderness if the Sawtooth National Forest were to reconsider its management plan prescription of inventoried roadless areas immediately north of the Reserve. The Graham Creek Study Area will continue to be managed in accordance with the NPS Organic Act of 1906. For any questions on this Wilderness Eligibility Assessment please contact Wallace Keck, Superintendent, at (208) 824-5911.


Wallace Keck, Superintendent

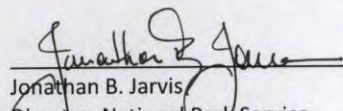
March 13, 2011

Date


Christine S. Lehnertz
Regional Director, Pacific West Region

03/01/12
Date

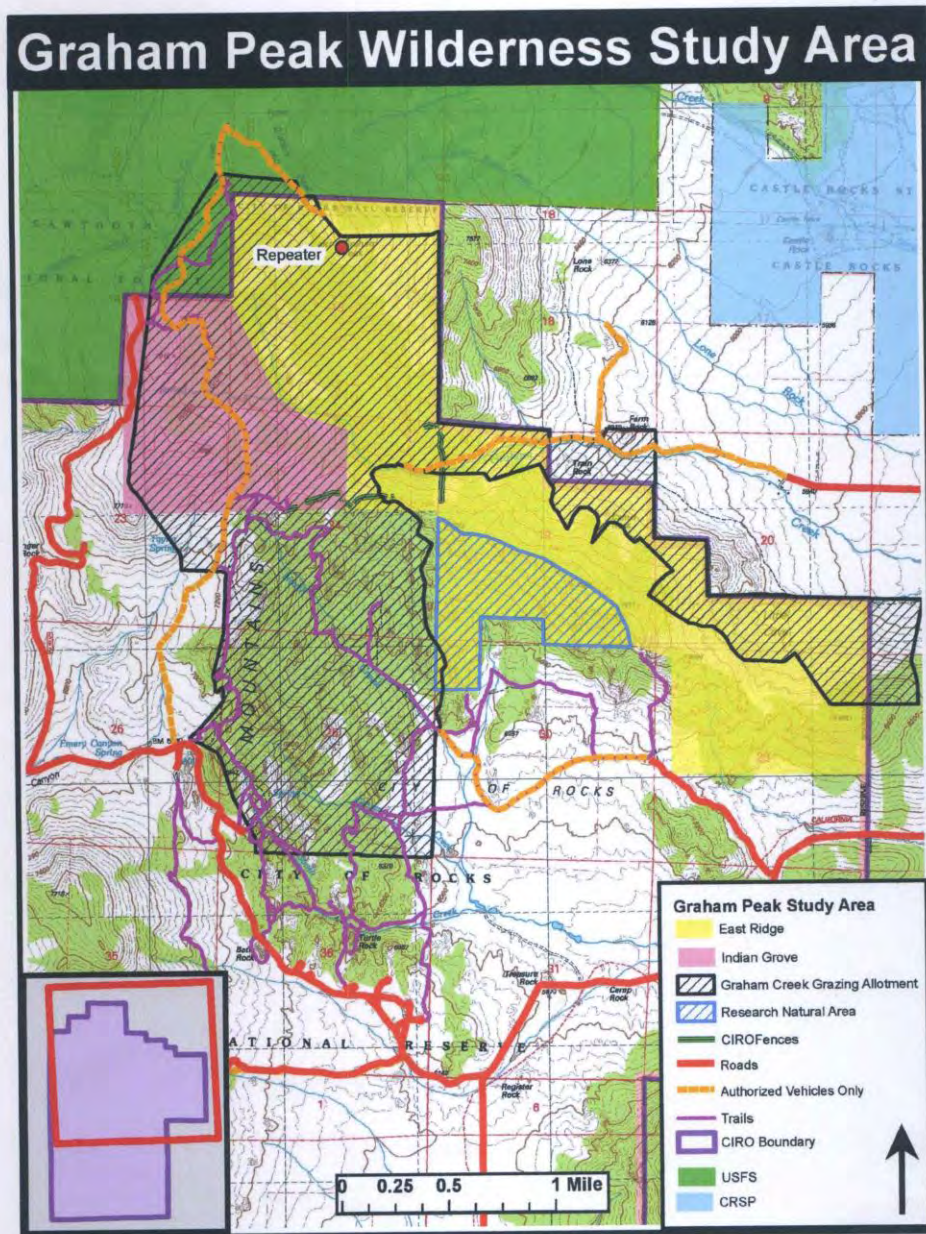
Concurred: ☒ Not Concurred: ☐


Jonathan B. Jarvis
Director, National Park Service

4/19/12
Date

Approved: ☒ Not Approved: ☐

Figure 1 Map of City of Rocks National Reserve Wilderness Eligibility Assessment



Appendix D: Rim Development Concept Plan for City of Rocks National Reserve

Rim Development Concept Plan for City of Rocks National Reserve



The Rim (View South from Shingle Butte)



City of Rocks National Reserve
National Park Service
Pacific West Region

DRAFT November 2012

Rim Development Concept Plan for City of Rocks National Reserve

Background and Description of Current Camping Conditions

Camping at “City of Rocks” began with pre-historic people, and continued into recorded history with the Shoshone and Bannock Tribes, emigrants traveling the California Trail, local settlers, and early 20th Century tourists. Many of the modern-era campsites became established by climbers and campers during the late 1960’s to the mid 1980’s, before City of Rocks National Reserve (Reserve) was established. Generally, visitors would pitch tents and park vehicles wherever they could find shelter from the spring and fall winds or summer heat, yet close to climbing sites. Consequently, most campsites in the Reserve are located along the southern and western rim of Circle Creek Basin (known as “the Rim”). These sites offer prime views of the pinnacles comprising the “Inner City” as well as more expansive views of Granite Ridge that completes the northern encirclement of the basin.

In addition to the sites along the Rim, a small number of campsites are clustered near the southwest entrance (Juniper Group Camp), at Twin Sisters, and at Finger Rock in the northern part of the Reserve.

Campsites inherited by the Reserve have been progressively modified. A few new campsites have been established and some have been closed and the landscape restored. Most others have undergone site improvements, such as parking delineation, and the installation of a tent pad, picnic table, and fire ring. Over time vault toilets have been placed near most campsite areas, and drinking water supplies have been improved. Extraneous road segments have been closed and restored to better manage traffic flow and reduce conflicts between overnight and day-use activities.

As of 2012, there are 64 standard campsites with parking. A standard campsite is a delineated campsite with a tent pad or recreational vehicle (RV) pad/area and a table and/or fire ring. Of these, 21 are considered walk-in campsites, meaning that the designated campsite is not adjacent to the parking space, and a walk of 100-665 feet between the site and parking space is required. Six campsites can accommodate small RV’s. There can be a maximum of eight people, two vehicles, and two tents at each individual campsite.

Three camping areas are designated as a group site which permits a minimum of 12 and a maximum of 35 persons. These are Juniper (which can accommodate horses), Twin Sisters, and Bread Loaves. In addition, there are currently five lettered campsites that are not in the reservation system. These are used by visitors on a “first-come first-serve” basis.

The Reserve includes a total of 72 campsites: 64 standard and numbered sites, three group camps, and five standard sites denoted by letters (C, D, E, F, and G). The goal of the Reserve is to provide traditional amenities at all campsites. This would include a picnic table, ground fire ring, designated parking pad, numbered campsite post, a tent pad with a minimum size of 10x12 feet and reasonable access to a vault toilet. Each site is unique and often located where there are interesting terrain features and views.

Purpose of the Rim Development Concept Plan

In conjunction with the Reserve's General Management Plan (GMP), the planning team determined that a Development Concept Plan (DCP) should be developed for "the Rim" that includes an assessment of day-use and campsite areas. The highest concentration of vehicular and recreational use in the Reserve is along the Rim. The DCP will help provide a framework to enhance and improve visitor facilities.

A review of the 2009 GMP public scoping comments provided a broad spectrum of issues and use conflicts between recreational activities. Specific comments related to day-use activities and camping included: improving trailheads, providing adequate parking; correcting camping congestion; providing additional campsites; resolving day-use and camping conflicts; providing more areas dedicated for day-use, providing more vault toilets; and defining parking.

The purpose of this Rim DCP is to:

- Identify opportunities for new day-use areas along the Rim. Currently, there are only a few small dedicated day-use areas.
- Separate overnight use from day-use to avoid user conflicts, such as hikers walking through campsites to reach trailheads, hikers parking at campsites, or campers parking at trailheads.
- Improve visitor safety and experience along the main road through the Reserve by removing campsites and parking pull-outs immediately adjacent to the City of Rocks Rd.
- Identify poorly-sited campsites for closure and new areas suitable for campsite development, resulting in a no net loss or if possible an increase of campsites throughout the Reserve.
- Identify strategic actions that would enhance the camping experience, such as adding vault toilets and defined parking at campsites and trailheads.



Congestion at Parking Lot Rock

This Rim DCP is not a detailed evaluation of individual campsite features and characteristics; that will follow later. Rather, it is an overview of the spatial pattern and grouping of campsites throughout the Reserve, not just along the Rim. This document communicates actions that are planned, subject to the outcome of detailed environmental assessments.



View from Bath Rock Area

Other Camping Opportunities

To more clearly understand the need for camping in the Reserve, an overview of other camping opportunities nearby is discussed below.

Smoky Mountain Campground is located approximately two miles southwest of Almo near the east entrance of the Reserve and provides developed camping opportunities for Reserve visitors. Established in 2007, the campground is a unit of Castle Rocks State Park and offers 38 RV campsites and two yurts accessed via a paved two-lane road. Each campsite is equipped with paved parking, water and electricity, and a defined living area that includes a tent pad, picnic table and fire ring. Accessible restrooms provide hot and cold running water, flush toilets, and showers. Six of the 38 campsites are within an equestrian loop, and each site has a corral. Water service for the horses, a community corral, and manure dumpsters are also included in the equestrian loop. Smoky Mountain Campground provides a popular and more sophisticated camping experience. These sites better accommodate RVs and large camp trailers than do Reserve campsites, which offer a more primitive camping experience.



Smoky Mountain Campground

City of Rocks Backcountry Camping Area is located in Indian Grove, a remotely-accessed and forested area in the Reserve's north end. The designated camping area is defined by a lodge-pole and post fence that surrounds approximately one acre of aspen, fir, and riparian vegetation. The fence excludes cattle that graze the area July through September. A spring nearby provides non-potable water, and one designated fire ring is provided. There is no fee to camp in this area, but a permit is required from the visitor center in advance. Parking for the backcountry is at Emery Pass Picnic Area, and the camping area is reached after hiking two miles via the North Fork Circle Creek and Indian Grove Trails.

Sawtooth National Forest offers undesignated free camping north of the Reserve along the Logger Springs Road. When the Reserve and Smoky Mountain Campground are full, some visitors choose this location above 8,000 feet. In some years, forest roads are blocked by snow drifts as late as July 1, but in other years access is open as early as Memorial Day Weekend. No permits are required for this area, and no facilities are provided.

Bureau of Land Management (BLM) allows free and dispersed camping. The BLM lands adjacent to the Reserve and Smoky Mountain Campground are heavily used from late May through September.



Dispersed camping in the Sawtooth NF is permitted

Some areas are so frequently used that the sites are unofficially developed by visitors – a scene reminiscent of City of Rocks prior to 1988. Campfire rings, parking areas and even make-shift benches clearly define the more popular sites. These sites are reached via the Smoky Mountain Road. BLM campers enter and exit Castle Rocks State Park at no charge, and often are observed using the restrooms and showers provided to paying guests. On the busiest of weekends, this BLM dispersed camping area is full, requiring that late comers push further out from the Reserve to find free camping. The next most popular area is located south of Almo on the Lynn Road, past the second cattle guard in Sections 3 and 10, T16S R24E (Almo Quadrangle).



BLM Dispersed Camping on Smoky Mountain

Castle View RV Park is privately owned and located south of the City of Rocks Road three-quarters of a mile. The primitive campground offers less than two-dozen defined sites (though many more have used the facility during events) and no utilities, picnic tables, tent pads or grills. Guests pay camping fees on the honor system. The campground has no shade, restrooms, or RV dump station. The facility is popular with large groups holding events, and occasionally with late arriving campers on prime summer weekends.



Castle View RV Park (Private)

City of Rocks National Reserve Roads

The two main roads through the Reserve are the 9.2-mile City of Rocks Road, accessing sites along the Rim and the 6.2-mile Twin Sisters Road, beginning from the main T-intersection out to the southwest Entrance. Both of these roads are maintained by Cassia County and are not paved. In late May or early June, Cassia County Road and Bridge Department grades and treats their jurisdictional roads with magnesium-chloride. This treatment usually prevents airborne particulates (dust) from occurring off roads all season. Reserve staff assists the county in grading or plowing snow throughout the year as needed. Approximately 9.5 miles of gravel roads are under the jurisdiction and maintenance of the NPS-IDPR partnership. These roads are not treated with magnesium-chloride due to low speeds and reduced traffic.



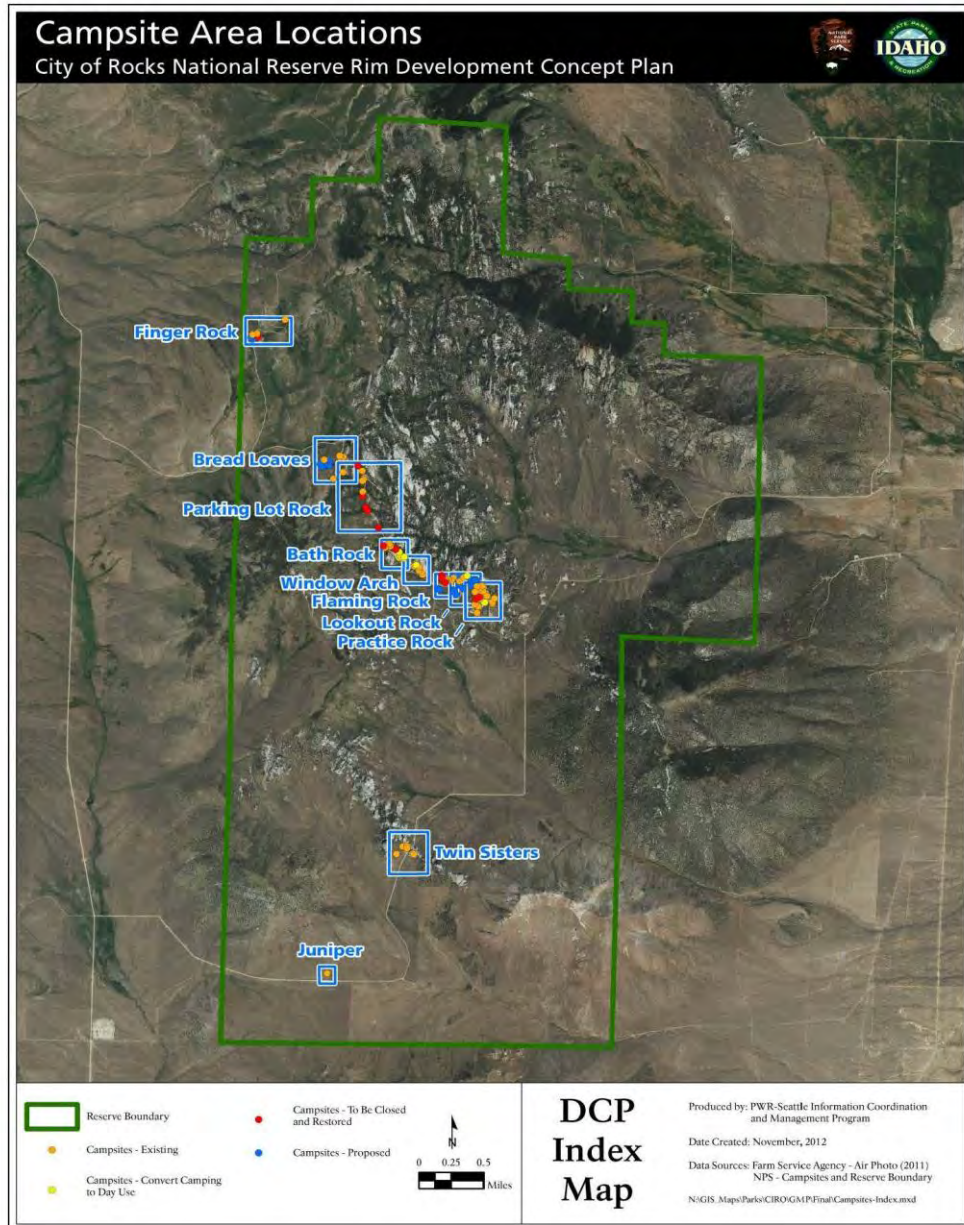
City of Rocks Road treated with magnesium-chloride

Organization of the Rim Development Concept Plan

Ten campsite areas are demarcated on the following maps, each within a geographic area, typically named after the closest major rock (refer to DCP Index Map on the following page). A general description of each campsite area is provided along with a summary of overall issues and strategies for improvement that involve: (1) relocating, closing or adding individual campsites, (2) converting campsites to day-use activities, such as picnicking, (3) adding restrooms, and (4) adding, closing or modifying segments of access roads and parking areas to better manage traffic flow.



The appeal of camping at City of Rocks has always been the pinnacles and scenic views above 6,000 feet.



Index Map. Aerial image showing the location of campsite areas in the Reserve.

1. Juniper Area

General Description

The Juniper Area is located near the southwest entrance to the Reserve, also known as the “Junction Entrance.” “Juniper” is a group campsite and the only site inside the Reserve that accommodates horses. Nestled within a grove of Utah juniper, its isolated setting offers unusual privacy, seclusion and natural quiet. This site near the California National Historic Trail offers a sense of what emigrant campers experienced from 1843-1882.

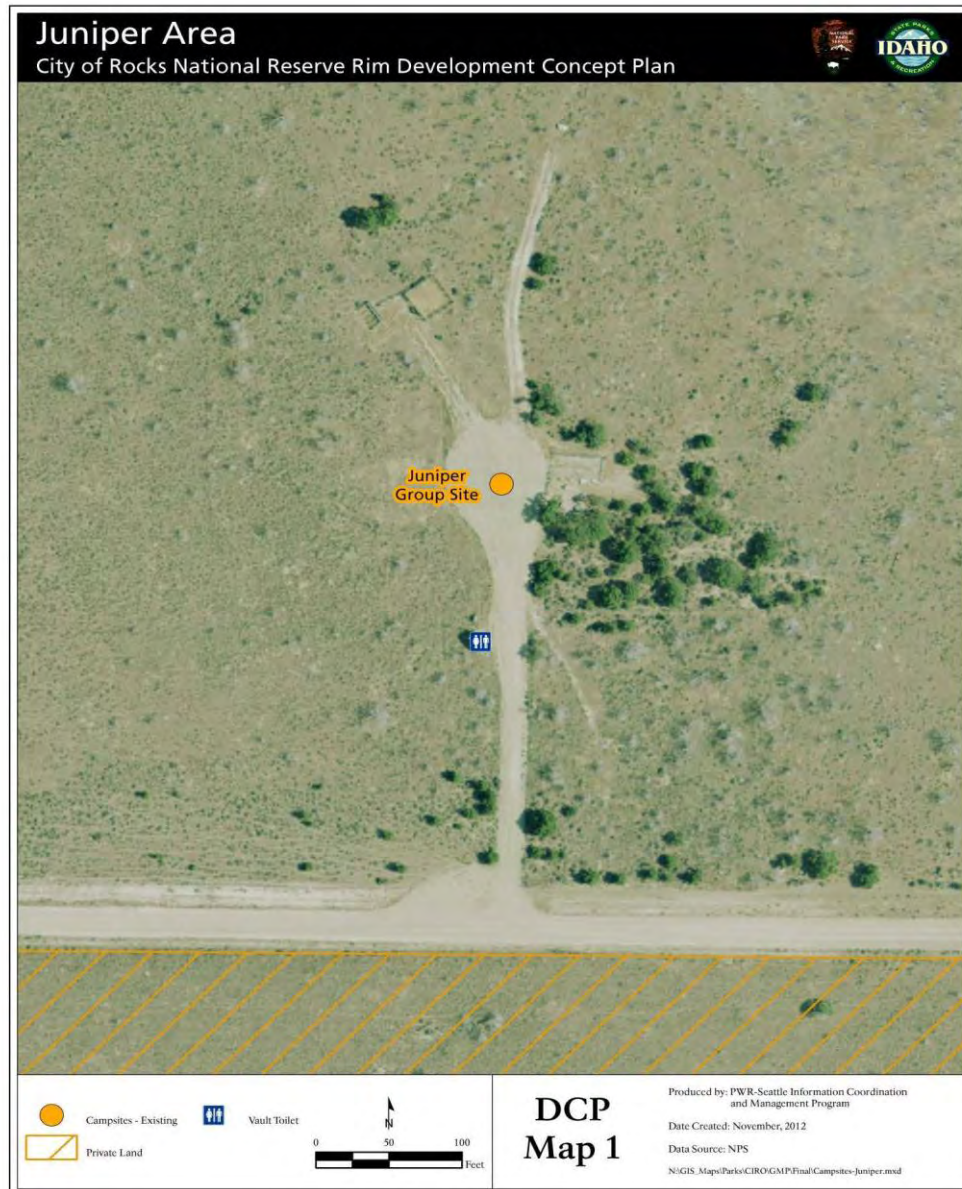
Juniper group site can accommodate 12 to 35 people per night. The area features a corral and standard campsite amenities. Water is not available. A vault toilet is located adjacent to the entry lane near its terminus at the parking area. The terrain is fairly level, with minimal development and no conflicting day-use activities.

Strategy and Justification

Although this is a group campsite, there is only one tent pad. Additional tent pad options are not delineated but sufficient bare ground supports about four tents. Parking spaces and a turn-around area for long tow vehicles are inadequate and therefore may pose safety issues when the site is in use. A site development plan would address these concerns. Discreet use of large rocks, fencing or other natural materials to delineating vehicular boundaries and segregate driving/parking from tent camping areas would improve safety and reduce encroachment onto adjacent vegetation.



Juniper Group Camp (above); Equestrian Corral (right)



Map 1. Aerial image showing the Juniper Area campsite.

2. Twin Sisters Area (Campsites 1 – 4 and Twin Sisters Group Site)

General Description

Near the Twin Sisters Road where it crosses the ridge of granite pinnacles, four individual campsites and one group campsite are provided. The individual sites are located on the west side of the road and are all accessed from a secondary, single-lane, gravel road. Access to sites 1 and 2 require a short walk from their designated parking areas. Sites 3 and 4 have designated parking spaces adjacent to their sites. The group site and vault toilet are located on the east side of Twin Sisters Road and are accessed on a single-lane, gravel road. Campers at sites 1-4 currently must cross the road to access the vault toilet. Aside from occasional vehicle traffic, these sites offer privacy and a sense of seclusion, with views of the Cedar Hills and Twin Sisters.

The group site accommodates 12 to 35 people per night. Ranger-led tours to Pinnacles Pass, climbing, and picnicking at unoccupied campsites occur here. Traffic flow and parking spaces are not defined at the group site. This lack of design contributes to random driving and parking behavior and pedestrian/driver confusion. Vehicular encroachment upon vegetation along the gravel perimeter has gradually increased the size of the impacted area. Tent sites and picnic tables are located within drainage flows, resulting in soil compaction and accelerated erosion.

Strategy and Justification

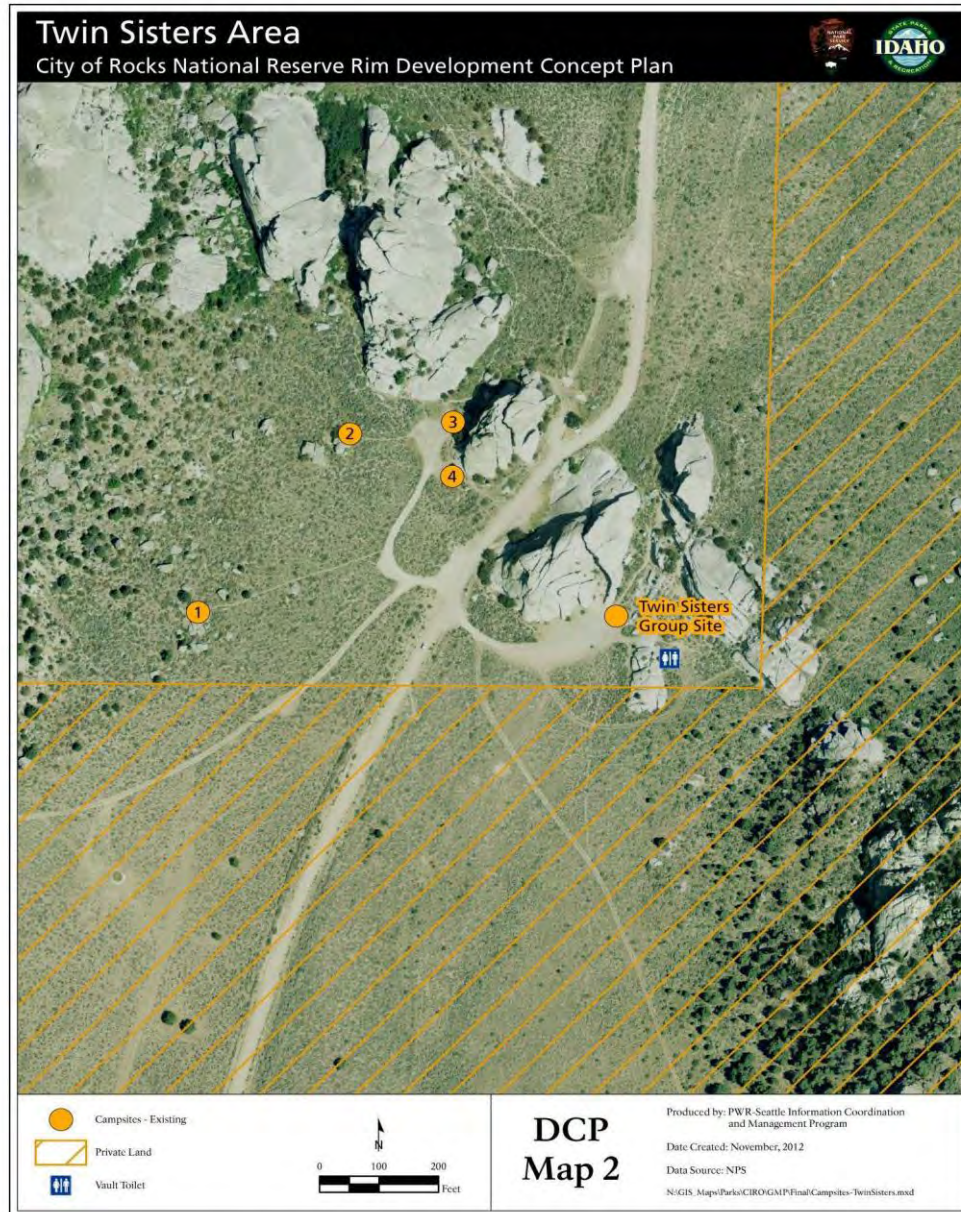
Although the vault toilet meets ADA standards, the accessible route to it does not; therefore, this route would be rebuilt and delineated using rock or other natural materials. To improve safety and resolve vehicular/pedestrian confusion, directional traffic flow and parking spaces would be delineated and signed. This would also curtail vehicular encroachment on vegetation and erosion. Picnic tables and tent pads would be improved. Further evaluation of the surrounding terrain may identify suitable sites for additional campsites, if needed.



Twin Sisters Camping Area (view SE to Pinnacle Pass)



Twin Sisters Group Site (view NW to Twin Sisters)



Map 2. Aerial image showing the Twin Sisters Area campsites.

3. Practice Rock Area (Campsites 5 – 19, C, D)

General Description

The Practice Rock Area is situated within a fairly level basin between Lookout Rock to the north and Elephant Rock to the southwest. Seventeen campsites are located among the granite formations with lowland views of various rock formations. Most sites are exposed to wind with very little shade. A vault toilet is located near the central west side. Three sites on the east side (8-10) and three sites on the north end (16-18) require walking in from their designated parking areas. Small RVs can occupy three sites (5, 7, and 12). Two sites (C and D) are not in the reservation system, but rather have been planned for closure since 2007. Until closure is official, the sites are being used on a “first-come first-serve” basis. This area is accessed from the City of Rocks Road just north of the Elephant Rock day-use area. The main campsite road accessing the Practice Rock Area terminates at the Box Top Trailhead on the east side near Practice Rock (see DCP Map 4). Overnight camping and day-use activities conflict in this area due to proximity to Practice Rock where there is insufficient parking to accommodate both day-use (climbing and hiking access) and overnight camping.

Strategy and Justification

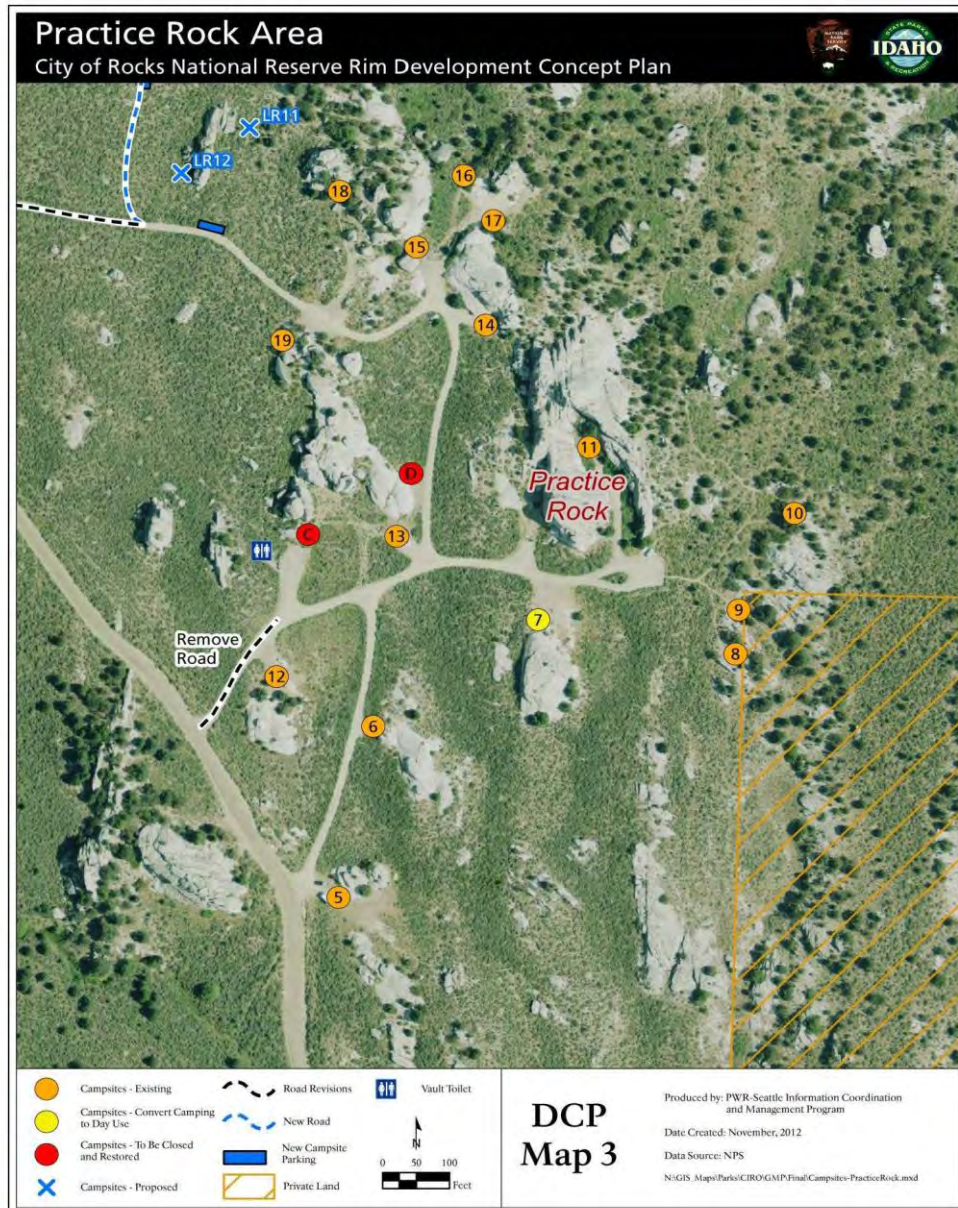
Two campsites, C and D, would be closed and restored. Campsite C is on a slope and too close to the vault toilet. The parking area would be reduced in size, and an accessible route to the vault toilet would be constructed. Campsite D is too close to the road and is subject to safety and erosion issues. Campsite 7 has limited privacy because day-users park at or near the site to access Practice Rock and the Box Top trailhead. Campsite 7 would be converted from overnight camping to day-use to provide needed parking and protect resources. The road just to the west of campsite 12 would be closed and restored to natural conditions. This would reduce unnecessary road segments, avoid traffic circulation confusion, and improve safety.



SW View of site 13 (foreground) and 12 (distant)



Site 7 South of Practice Rock (convert to day-use parking)



Map 3. Aerial image showing the Practice Rock Area campsites.

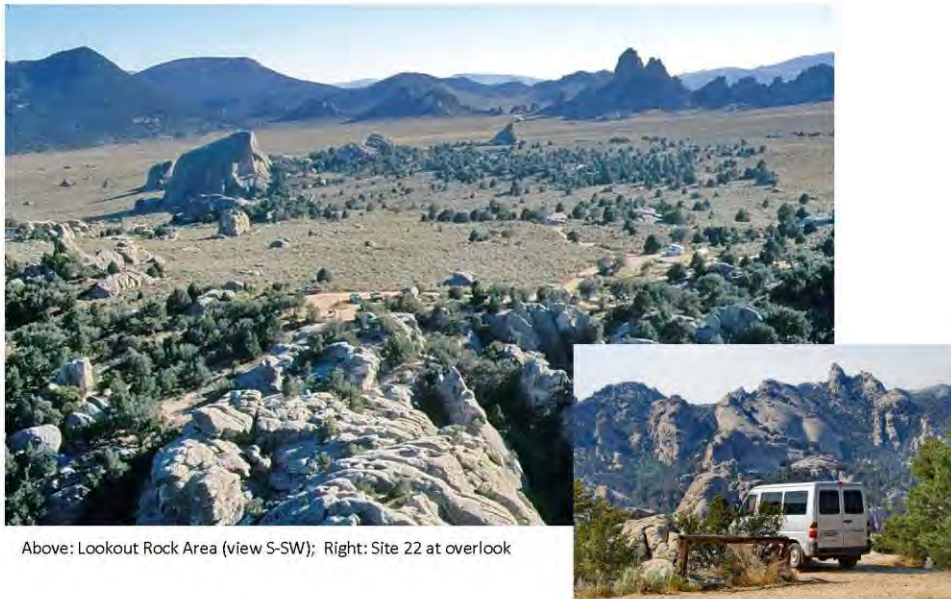
4. Lookout Rock Area (Campsites 20 – 22)

General Description

The Lookout Rock Area, nestled between the Practice Rock and Flaming Rock Areas, has exceptional southwest views of the open landscape and Elephant Rock to the south. This group consists of three individual campsites, and one of these (site 20) can accommodate a small RV. The campsites are exposed to the wind with little or no shade. There is no vault toilet for this area, and the nearest is located to the west at Flaming Rock. The terrain and developed campsites are relatively level.

Strategy and Justification

The Lookout Rock area appears to be the most promising for adding individual campsites and associated amenities along the Rim (see DCP Map 4). The west access road would be converted to a trail and a new road segment would be constructed to create a simple loop configuration. The new road segment would provide access and parking for approximately a half dozen new campsites, a walk-in campsite between campsites 20 and 21, and two new campsites near the entrance. Site 22 would be converted to a day-use overlook because it is one of the most scenic viewpoints in the Reserve. Near rock outcrops west and across the City of Rocks Road may provide landscaping for the location of three additional walk-in campsites. A centralized parking area and vault toilet would need to be added to this area, most suitably located near the current terminus of the access road (see DCP Map 4). Parking at the existing campsites would be delineated with rock, fencing or other natural materials to reduce vehicle encroachment onto adjacent vegetation.



Above: Lookout Rock Area (view S-SW); Right: Site 22 at overlook



Map 4. Aerial image showing the Lookout Rock Area campsites.

5. Flaming Rock Area (Campsites 23 – 32)

General Description

The Flaming Rock Area is situated between Lookout Rock and Bath Rock. Due to rugged terrain, this developed area is fairly compact and congested. Ten campsites are densely sited, yet fairly level. Four sites (23, 24, 31, and 32) require walking from their respective parking areas. A vault toilet is located on the east side of the road network and is easily reached from all campsites. This area is accessed from the City of Rocks Road by two separate gravel lanes. The west lane accesses the popular Flaming Rock Trailhead, but parking is limited. Overflow parking plugs the access lane, entry lanes, and parking spaces next to the vault toilet. Day-use parking surrounds campsite 27 on three sides. The biggest issue at Flaming Rock is inadequate trailhead parking that creates conflicts between day-use and overnight camping.

Strategy and Justification

A separated entry and access to the Flaming Rock Trailhead with parking for at least 10 vehicles would help to mitigate conflicts. The travel lane to the trailhead would be closed and restored to a trail. The highest and best use for that location is for entry into the “Inner City” for recreational activity. The eastern access lane would be designated for campsites 23 through 30, with additional parking at the vault toilet.

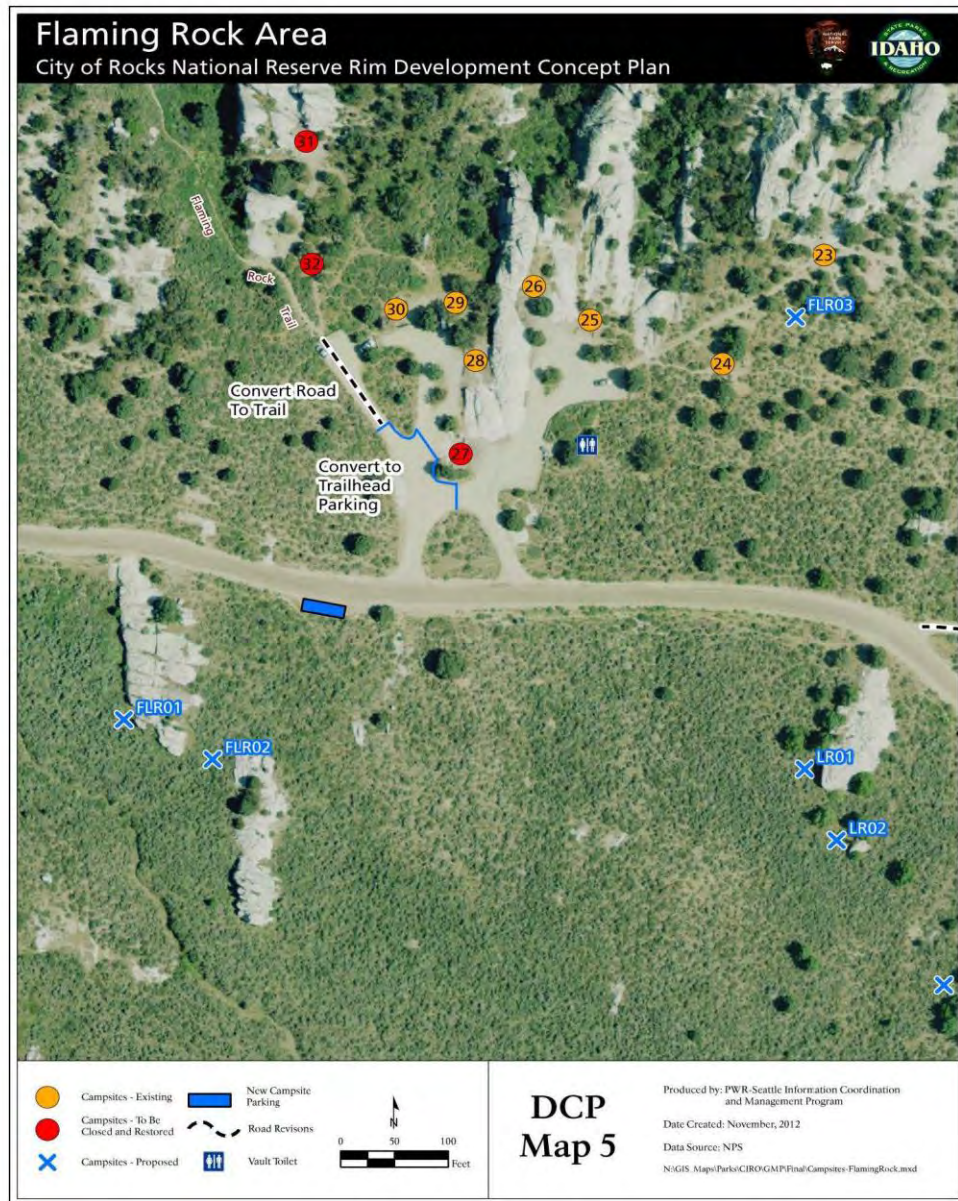
Three campsites (27, 31, and 32) would be closed due to day-use activities. Campsite 27 would be converted to dedicated vehicle access to campsites 28, 29 and 30. Three new campsites could be added to the Flaming Rock Area. One walk-in site would be added on the south side of the trail between campsites 23 and 24. This would require adding two more parking spaces north of the vault toilet. Two new walk-in campsites and associated parking could be located near the rock outcrops on the south side of the City of Rocks Road across from the entrance.



Congested parking at Flaming Rock Trailhead



Campsites 27-28; South View



Map 5. Aerial image showing the Flaming Rock Area campsites.

6. Window Arch Area (Campsites 33 – 38)

General Description

The Window Arch Area is located between Flaming Rock and Bath Rock. Two clusters consisting of three campsites each are interspersed among granite knobs. One site (36) requires walking in from the parking area. Several sites have exceptional views of Bath Rock and open landscape to the southwest. Window Arch Trailhead is situated at the north end of the parking area and is accessed through site 37. This area has no vault toilet and is situated about half way between the vault toilets at Flaming Rock and Bath Rock. Development is minimal. These two clusters are accessed from the City of Rocks Road by separate gravel lanes. Terrain conditions preclude making a loop from these lanes.

Strategy and Justification

The primary issue regarding this area is that there is no day-use parking for visitors hiking to Window Arch, a popular point of interest. Window Arch is just north of campsite 37. Day-use visitors park around the perimeter of the lane or in vacant campsite parking spaces. Campsite 37 would be closed to make its parking spaces available for day-use visitation to Window Arch and the Five Cracks Climbing Site. Parking would be delineated with large rocks, fencing, or other natural material to eliminate encroachment into adjacent undisturbed areas. A vault toilet should be provided for this area.



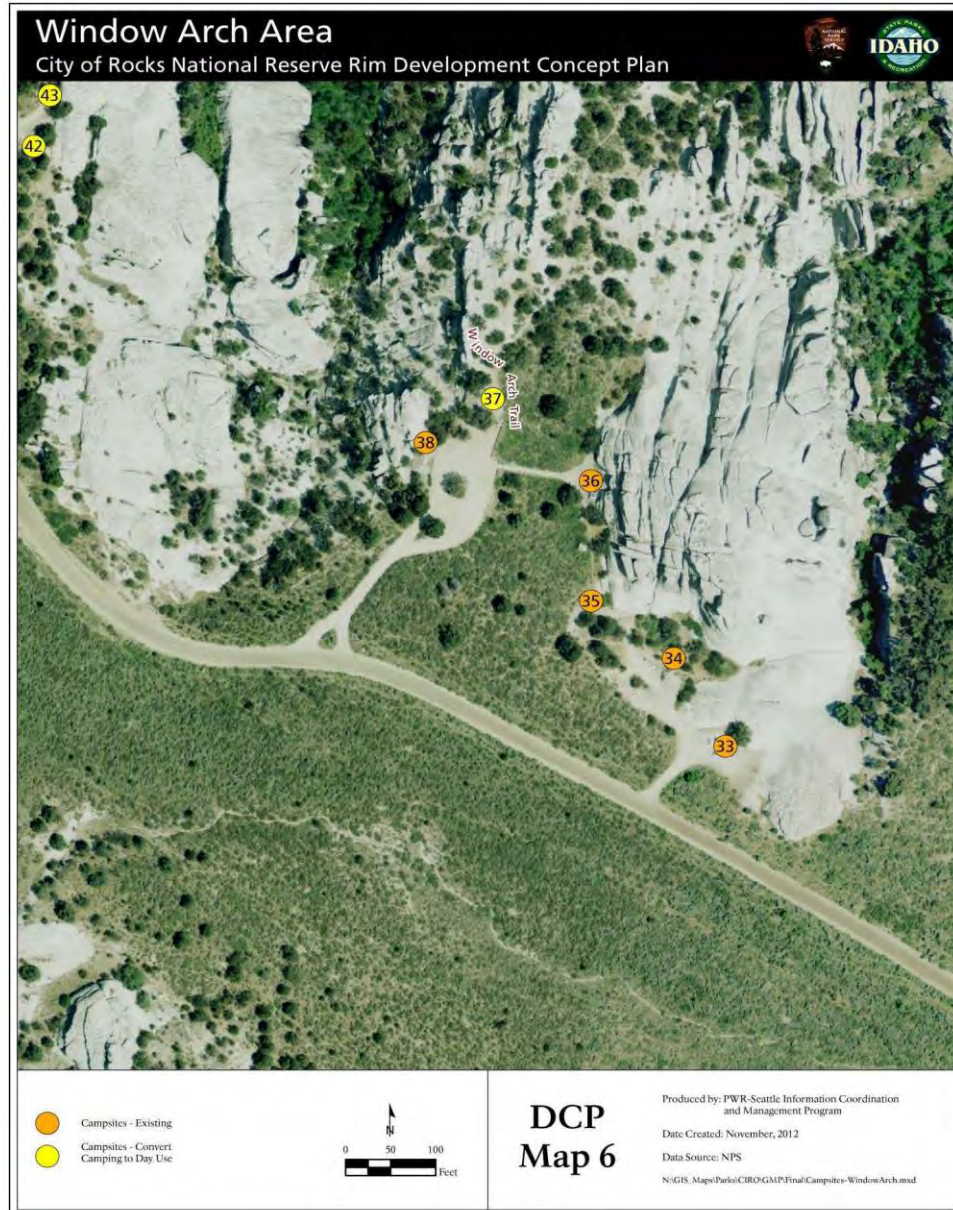
Conflict: Site 37 and Window Arch Trail



Window Arch is a popular destination



Site 36 (Left)
Site 38 (Right)



Map 6. Aerial image showing the Window Arch Area campsites.

7. Bath Rock Area (Campsites 39 – 49)

General Description

The Bath Rock area consists of 11 individual campsites. Access to seven sites (39, 40, 41, 42, 43, 44, and 45) requires walking from the parking lot at Bath Rock. Two other sites (48 and 49) also require walking from their designated parking areas. Site 39 is often used by a camp host from Memorial Day through mid-summer, but if the site is vacant, it may be used by other campers. Two vault toilets and potable water are centrally located in this cluster next to the Bath Rock parking area that is adjacent to the City of Rocks Road. This area is popular for both camping and day-use and is a centralized hub in the Reserve due to availability of potable water, vault toilets, information, scenic overlooks, picnicking, climbing, school bus parking, and trailhead for the popular Creekside Towers Trail. The multitude of activities often results in congestion and conflicts during times of high visitation. Notable conflicts include the encroachment of hikers through campsites to reach overlooks, and day-use parking occupying sites needed for overnight guests.

Strategy and Justification

Due to the hub of activity and services at Bath Rock this area would be converted to day-use. Six campsites (39-44) are recommended for closure to provide space for day-use activities such as picnicking, scenic viewing and photography. This is especially important for providing scenic viewing opportunities for those people with mobility challenges and easy access needs who would not otherwise be able to hike into the Inner City.

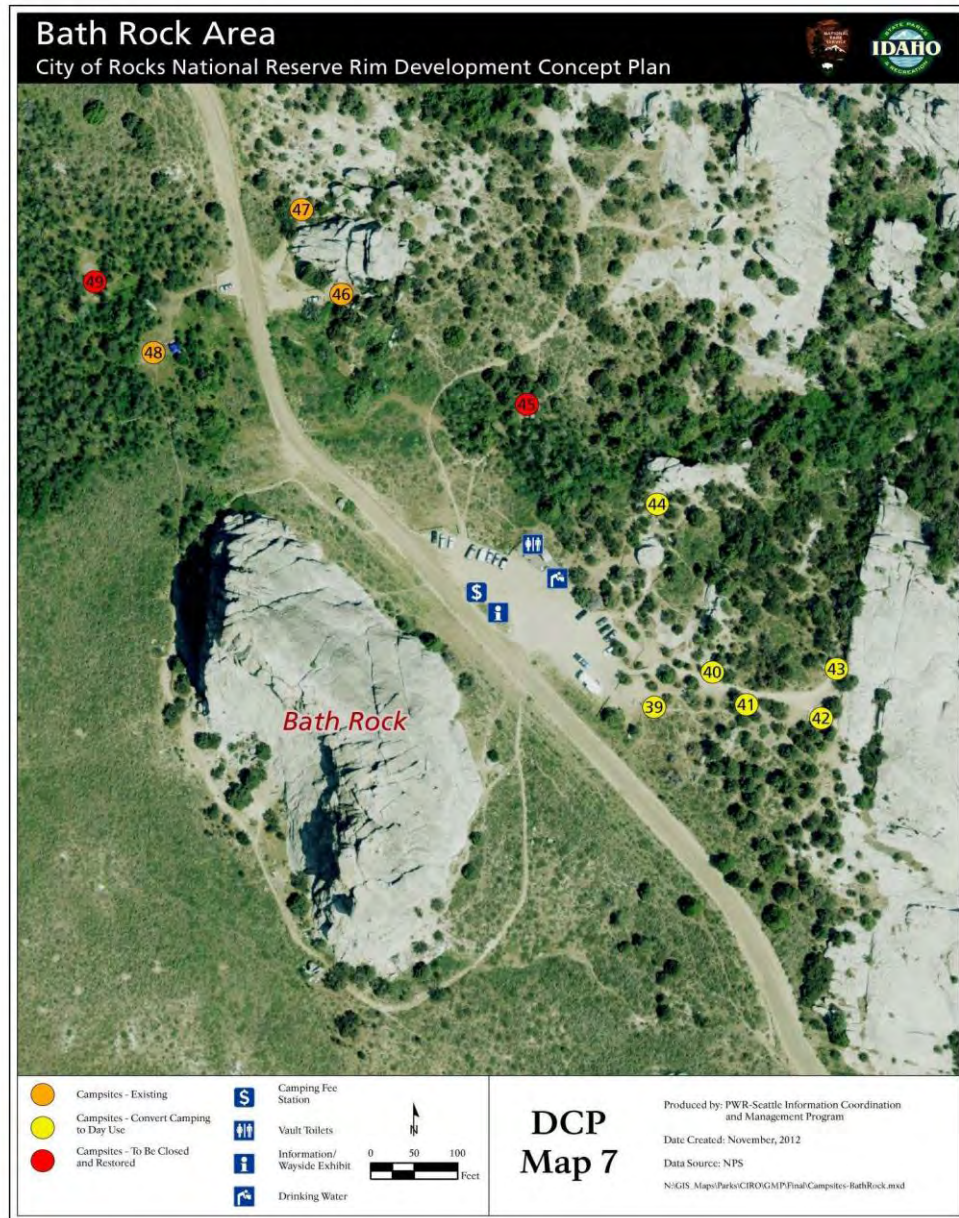
Two campsites (45 and 49) would be closed and rehabilitated due to encroachment into aspen groves and conflicts with day-use. The parking area would be defined and reconfigured, and short trails leading to a northeast overlook (on Creekside Towers Trail) and another leading to the picnic area and overlook to the southeast would be hardened and made accessible. Additional interpretive exhibits and monuments for the National Historic Landmark (NHL) and National Natural Landmark (NNL) designations would also be featured here.



Bath Rock Parking Area (view South)



Bath Rock Parking Area (view Southeast)



Map 7. Aerial image showing the Bath Rock Area campsites.

8. Parking Lot Rock Area (Campsites 50 – 57, E)

General Description

The Parking Lot Rock Area encompasses the oldest and most popular campsites in the Reserve. All nine sites are situated along City of Rocks Road. Several sites have views of Owl Rock to the north. Access to four sites (52, 53, 54 and 55) requires walking from their designated parking areas. One site (E) is not in the reservation system, but is used on a first-come first-serve basis. A vault toilet is located alongside the access road to Parking Lot Rock; however, since these campsites are strewn alongside the City of Rocks Road, the vault toilet is not conveniently located for campers.

This dispersed cluster of campsites and associated parking adjacent to the road contributes negatively to the impression that the Reserve is a long, continuous campground. Through this camping area, the City of Rocks Road is steep and winding, and at times perched on the Rim. Many scenic views are offered, including Morning Glory Viewpoint, which provide a popular interpretive exhibit on climbing.

Strategy and Justification

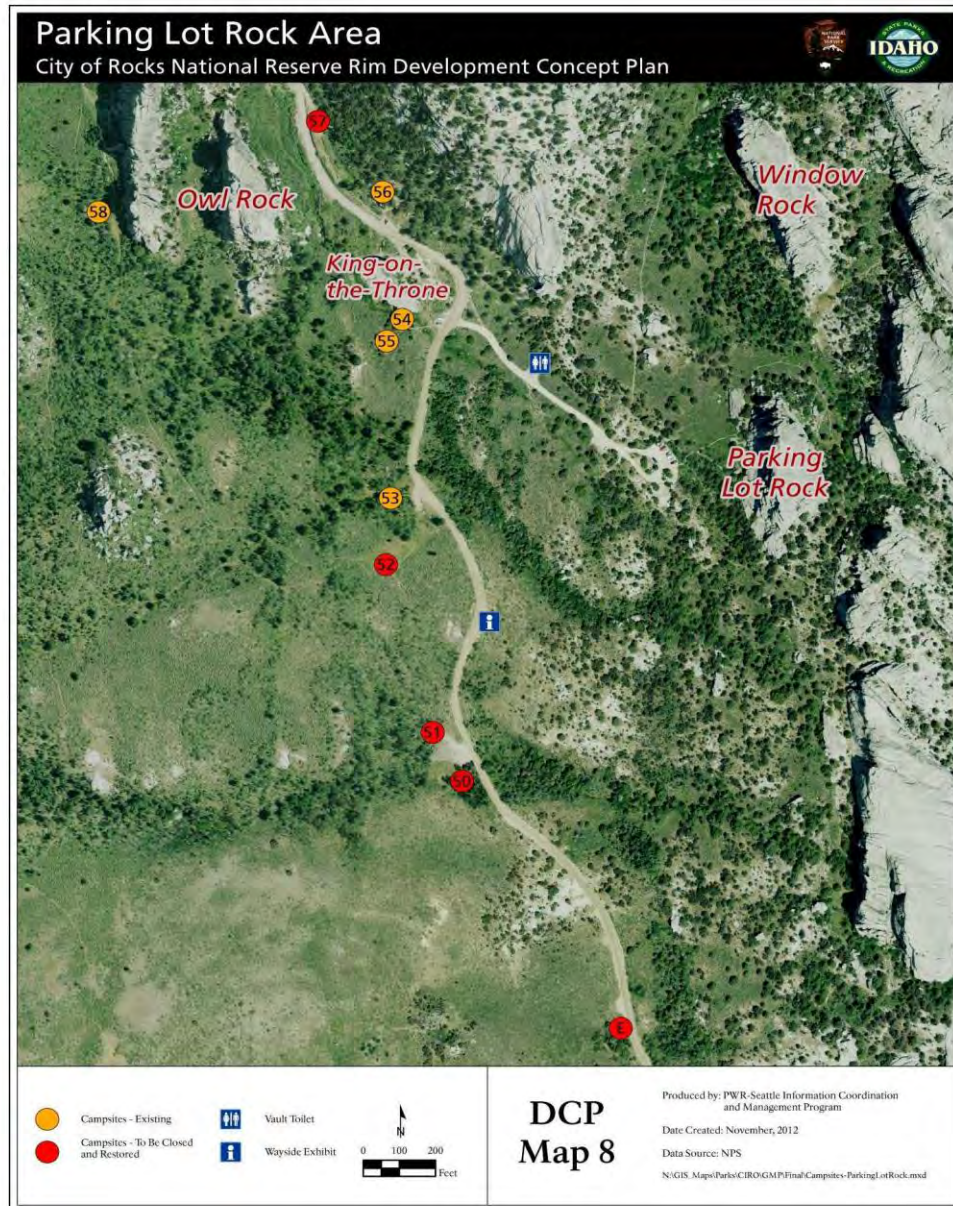
Five campsites along the City of Rocks Road would be closed to protect visitor safety, alleviate natural resource impacts, and to enhance visitor enjoyment of touring the most scenic portion of the City of Rocks Road. Large rocks, fencing, or other natural material would be used to eliminate encroachment into adjacent undisturbed areas.



Campsite 52-53 adjacent to City of Rocks Road



Campsite 57 adjacent to City of Rocks Road



Map 8. Aerial image showing the Parking Lot Rock Area campsites.

9. Bread Loaves Area (Campsites 58 – 60; F, G; Bread Loaves Group Site)

General Description

The Bread Loaves Area consists of five individual campsites, one group campsite, and one vault toilet. Drinking water is available at the Emery Pass Picnic Area at the north end of Upper Bread Loaves. The group site is located on the west side of Lower Bread Loaves and can accommodate 12-25 people. Three individual campsites, one of which is on private property, require a long-distance walk from the parking area; two sites (F and G) are adjacent to the parking area. A gravel lane off the City of Rocks Road provides access to this area.

Strategy and Justification

The parking area would be delineated with large rocks, fencing, or other natural material for better site organization and traffic flow. Erosion and impacts on trails to walk-in campsites would be mitigated. If private property is acquired, up to four new campsites could be established along the existing loop trail adjacent to site 60. One new site would be added south of the private property. Sites F and G would be brought back into the numbered reservation system, and camping areas would be improved.



Bread Loaves Group Camp Area



Map 9. Aerial image showing the Bread Loaves Area campsites.

10. Finger Rock Area (Campsites 61 – 64)

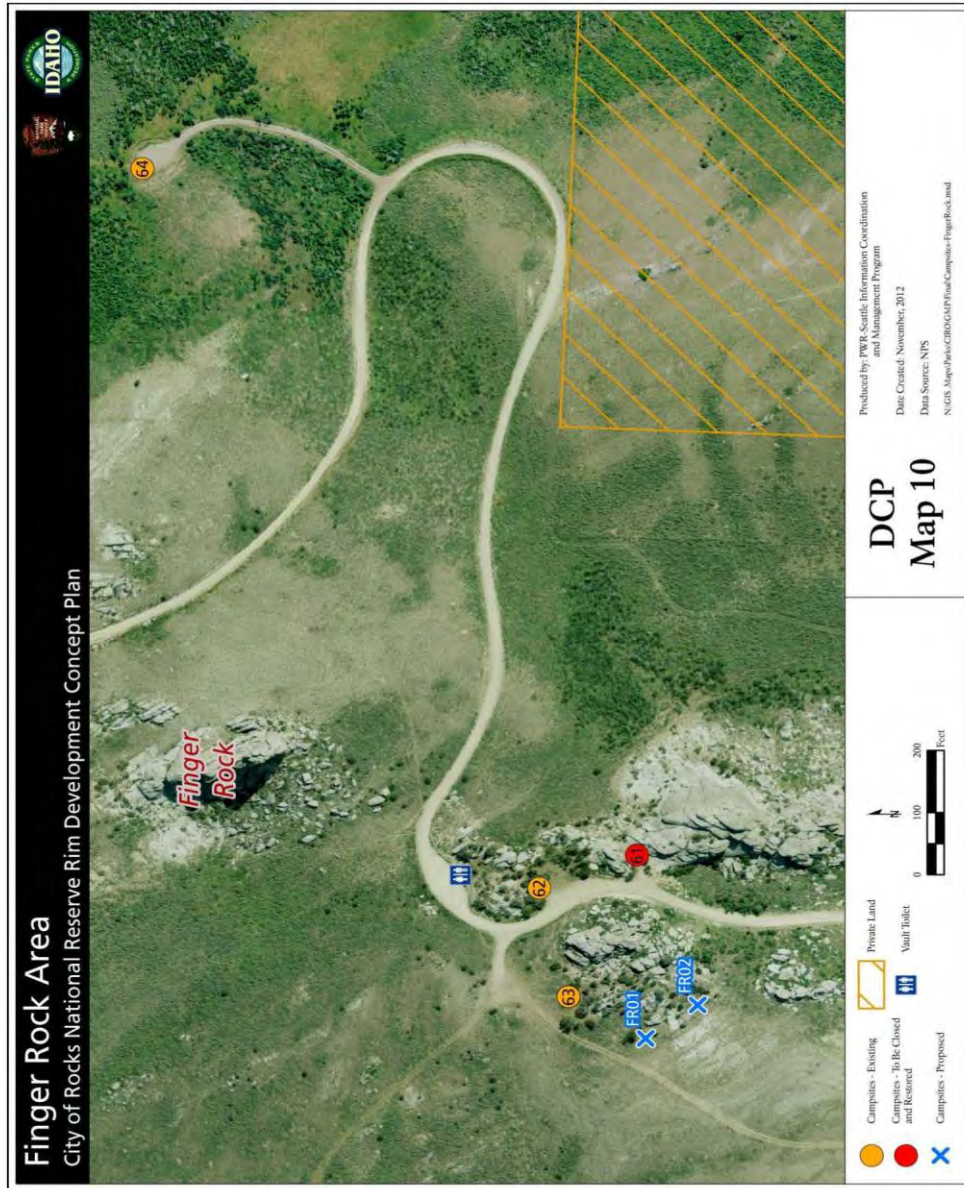
General Description

North of the City of Rocks Road and along Logger Springs Road, the Finger Rock area is located in a saddle along the crest of the Albion Range. The area is exposed to high wind and inclement weather, but offers exceptional vistas of Birch Creek Canyon and Middle Mountain to the west and a distant view of the town of Oakley to the northwest. To the southeast one can see Emery Canyon and Bread Loaves. At over 7,120 feet in elevation, these sites are the highest developed sites in the Reserve; only the Indian Grove Backcountry site is higher. There are four individual campsites. Three sites (61, 62, and 63) are interspersed among granite knobs within the saddle. Site 64 is located in an aspen grove about a quarter-mile up Logger Springs Road, 110 feet higher on the ridge, and at the end of a 340-foot gravel lane. These four sites are typically closed by snow until Memorial Day or later. Aside from occasional vehicle traffic, these sites offer solitude and natural quiet. Campsites are fairly level. A vault toilet is close to three of the campsites, but the elevation difference to the fourth campsite discourages its use.

Strategy and Justification

The three campsites in the saddle are in an exposed location. Site 61 is located along a blind curve in the road and can only accommodate parking for one small vehicle. This site would be closed for visitor safety and resource protection. Parking spaces for sites 62-63 would be delineated with large rocks, fencing, or other natural material to eliminate encroachment into adjacent undisturbed areas. Two new walk-in sites would be developed around the rocky promontory south of site 63. A parking area would be developed for these two new sites and the existing site 63.





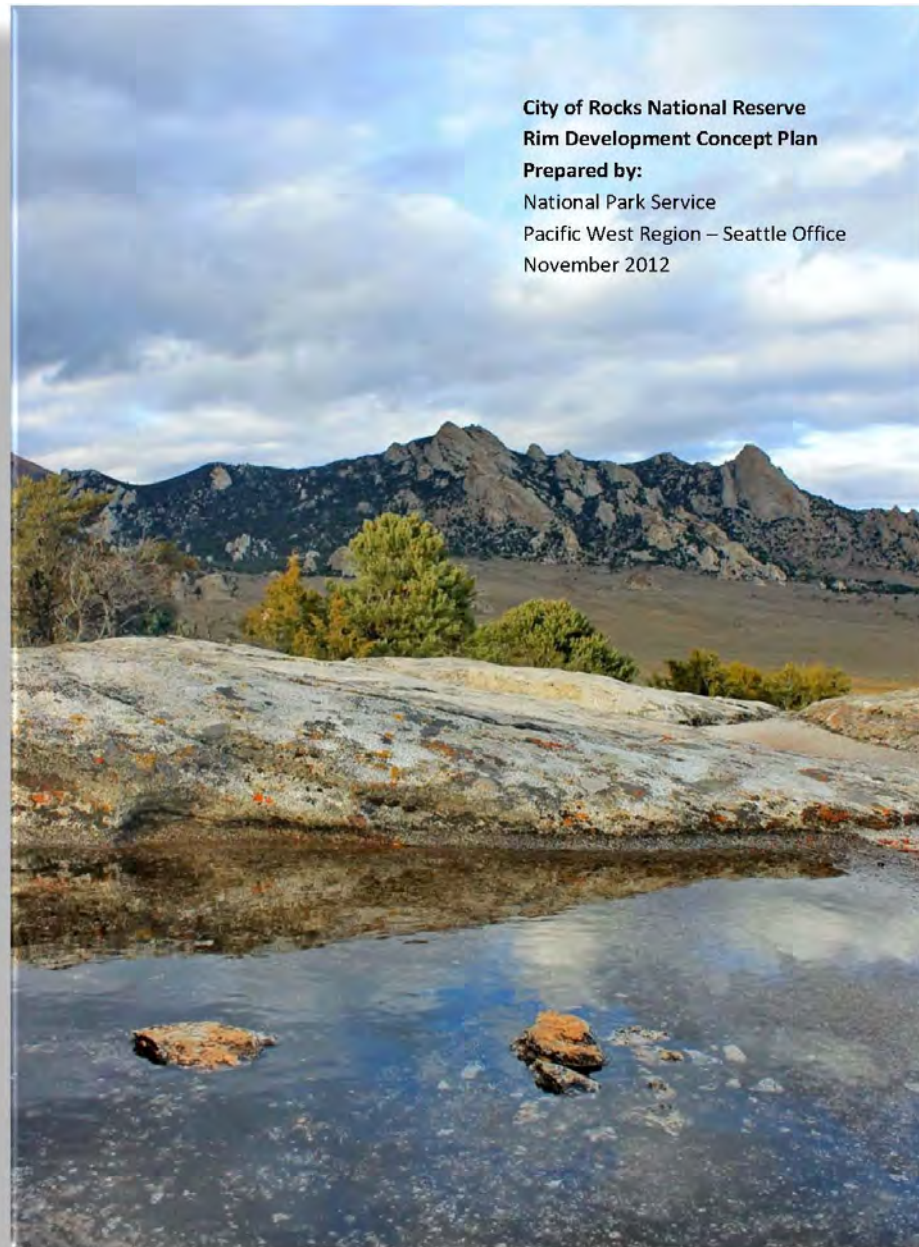
Map 10. Aerial image showing the Finger Rock Area campsites.

Summary of Strategies and Justifications

In summary, 9 campsites are planned for conversion to picnicking or day-use parking, 13 campsites are planned for closure and rehabilitation, and 22 new campsites are planned to be added, for a no net loss of 64 campsites within the Reserve. Strategies for campsite closure, conversion to picnicking, or new development are based on existing user conflicts, visitor safety, maintenance issues, resource impacts, parking needs, location and ability to access vault toilets, interpretive trails, site circulation conflicts, undesirable site locations, and picnicking opportunities.

The following strategies are planned:

CAMPING AREA	SITE # OR FACILITY	STRATEGY
Juniper	Designated site	Develop a specific site development plan, define and delineate
Twin Sisters	Vault toilet	Make accessible route that meets ADA/ABAAS standards
Twin Sisters	Parking area	Delineate traffic flow and parking, protect vegetation
Twin Sisters	Tables/tent pads	Improve tent pads and campsites to be level and attractive
Practice Rock	Sites C, D, 7	Close sites C and D, convert site 7 to day-use parking
Practice Rock	Road	Close road and restore landscape west of site 12
Lookout Rock	Road	Close East-West road and restore landscape
Lookout Rock	Road	Construct road segment to make loop south of Lookout Rock
Lookout Rock	Campsites	Construct up to 11 new campsites
Lookout Rock	Site 22	Close and convert to day-use overlook
Flaming Rock	Roads	Close connector between west and east entry roads
Flaming Rock	Trail access road	Convert to trail, delineate trailhead day-use parking area
Flaming Rock	Sites 27, 31, 32	Close sites to eliminate day-use conflicts
Flaming Rock	Campsites	Construct up to 4 new campsites
Flaming Rock	Campsites Parking	Increase size of parking area north of vault toilet
Window Arch	Site 37	Close and convert to trail parking and access to Window Arch
Window Arch	Vault toilet	Install a vault toilet for this area
Window Arch	Parking	Delineate parking and traffic flow to eliminate congestion
Bath Rock	Sites 39-44	Close sites and convert to day-use picnicking
Bath Rock	Sites 45, 49	Close sites to protect aspen/wetlands
Bath Rock	Parking area	Develop a specific site development plan, define and delineate
Bath Rock	Trails	Develop 2 short accessible and hardened trails to overlooks
Bath Rock	Exhibits	Add new wayside exhibits and NHL/NNL Monument plaques
Parking Lot Rock	Sites E, 50-52, 57	Close sites for visitor safety, experience, resource impacts
Bread Loaves	Parking area	Delineate parking and traffic flow to eliminate congestion
Bread Loaves	Campsites	If property is acquired, add 4 campsites, build new one on NPS
Bread Loaves	F, G	Formalize back into the reservation system with numbers
Bread Loaves	Trails	Mitigate impacts on trails to walk-in sites
Finger Rock	Site 61	Close site for visitor safety, resource impacts
Finger Rock	Campsites	Add up to 2 new campsites south of Site 63, improve parking



**City of Rocks National Reserve
Rim Development Concept Plan**
Prepared by:
National Park Service
Pacific West Region – Seattle Office
November 2012

Appendix E: Analysis of Boundary Adjustment and Land Protection

As one of the provisions of Public Law 95-625, the National Parks and Recreation Act of 1978,

Congress directed that the National Park Service consider, as part of a planning process, what modifications of external boundaries might be necessary to carry out park purposes. Subsequent to this act, Congress also passed Public Law 101-628, the Arizona Desert Wilderness Act. Section 1216 of this act directs the Secretary of the Interior to develop criteria to evaluate any proposed changes to the existing boundaries of individual park units. Section 1217 of the act calls for the National Park Service to consult with affected agencies and others regarding a proposed boundary change, and to provide a cost estimate of acquisition cost, if any, related to the boundary adjustment.

The NPS *Management Policies 2006* (3.5 Boundary Adjustments) state that the National Park Service will conduct studies of potential boundary adjustments and may make boundary revisions for the following reasons:

- To include significant resources or opportunities for public enjoyment related to the purposes of the park
- To address operational and management issues such as boundary and identification by topographic or other natural features
- To protect park resources critical to fulfilling park purposes

NPS policies instruct that any recommendation to expand park boundaries be preceded by determinations that the added lands will be feasible to administer considering size, configuration, ownership, cost, and other factors, and that other alternatives for management and resource protection have been considered and are not adequate.

The following is a review of the criteria for boundary adjustments as applied to City of Rocks National Reserve. The preferred alternative, alternative B, does not include a change in the current Reserve boundary. However, this analysis is included as supporting documentation for alternatives C and D, which include recommendations for boundary changes to the Reserve. One land area totaling approximately 4,247 acres, involving three parcels, is proposed for addition to the Reserve boundary under both alternative C and alternative D.

- Lands of the United States as currently managed by the Bureau of Land Management—one parcel of approximately 3,595 acres, including 240 acres under the use of the Idaho Department of Parks and Recreation through R&PP leases (R&PP leases: I-28350, IDI-32732 and ROW leases: IDI-31531 and IDI-30770)
- Tracy, J.E. Inc.—one parcel of approximately 364 acres (private ownership subject to county ordinances would remain, or an appropriate resource protection interest could be purchased by willing buyer from the willing seller)
- Ward, Harold Olen, Trustee—one parcel of 288 acres attached to a larger parcel currently within the Reserve (private ownership subject to county ordinances would remain, or a conservation easement could be purchased by willing buyer from willing seller)

All property owners proposed for inclusion in the Reserve boundary under alternatives C and D have been notified in advance and consulted prior to the public release of the draft general management plan. This proposed boundary change would require congressional legislation to authorize a revision to the Reserve boundary.

Significant Resources or Opportunities for Public Enjoyment Related to the Purposes of City of Rocks National Reserve

The lands within the proposed alternative C and D boundary expansion are primarily associated with Smoky Mountain, which—at 7,580 feet—is covered by Idaho’s largest intact pinyon pine (*Pinus monophylla*) woodland. These lands include Smoky Mountain Campground (and proposed campground expansion), equestrian and hiking trails (as well as the potential for more recreational trails to the peak), and the California National Historic Trail, the primary nationally significant resource that the Reserve was charged to preserve and interpret. Potential public recreational opportunities associated with the boundary expansion include the development of the outdoor learning center and visitor center proposed by this GMP, with views of the historic trail entering City of Rocks; a potential hiking trail to one of the area’s higher summits; experiences along the trails of old-growth pinyon and associated wildlife; and recreational hunting.

The proposed boundary expansion area for alternatives C and D contains two riparian areas that originate in the Albion Mountains and drain into the alluvial fans and the Almo Valley. Riparian areas are unique natural habitats that provide excellent birding and wildflower viewing opportunities. The parcels also contain grand geological features such as an isolated schist monolith and Elba Quartzite cliffs and boulder fields. With the expansion, dispersed camping on BLM lands would be organized, and sanitation facilities, picnic tables, fire rings, as well as a proposed bivouac (social camping) area would be installed. This would address existing visitor safety concerns and improve the overall visitor experience, as well as coordinate land uses between livestock grazing and visitor use outside the designated campground. Natural plant ecology and succession would be monitored and managed under NPS management guidelines.

Operational and Management Issues Related to Access and Boundary Identification by Topographic or Other Natural Features

The expansion described in alternatives C and D provides a more logical entry point and boundary to the Reserve from the gateway community of Almo. The entry and boundary are easily identified and communicated to visitors as defined by primary roads. Visually and from a resource management perspective, the transition from sagebrush steppe to pinyon-juniper woodlands closely resembles the proposed boundary north of City of Rocks Road. The expansion would also place the Smoky Mountain Campground and IDPR leases within the Reserve, allowing for cost-sharing of this critical recreational facility to the Reserve. Additionally, the entire Smoky Mountain physiological features would be included under a single agency, mission-tasked with recreation management, scientific study, and resource protection of the pinyon-juniper woodland. Currently, the jurisdictional boundaries are difficult to fence, sign, and communicate to visitors and agency personnel due to steep slopes and angular boundaries traversing rugged mountain terrain.

Protection of Park Resources and Fulfillment of Park Purposes

The boundary adjustment in alternatives C and D emphasizes and aids consistent ecological protection of the northernmost pinyon pine woodland and associated biotic community. The pinyon is important both ecologically and ethnographically and is related to two of the Reserve’s significance statements:

- The Reserve embraces the western rural setting by preserving remnants of traditional occupation, transportation, and land use of prehistoric and historic peoples.
- The Reserve occurs at a biogeographic crossroads and protects a rich ecological diversity, providing exceptional opportunities for scientific study and shared learning.

As scientists and researchers learn more about the Reserve's pinyon forest, it has become apparent that this location may play a role in understanding climatic changes in the Northern Basin and Range of the Intermountain West. At the crossroads and extreme edges of biogeographic regions, the effects of climate change may first be observed as ebbs and flows of plant and animal populations and diversity. The Reserve, and in particular Smoky Mountain, is just such an area. Research identifying the importance of this habitat to pinyon jays, as well as the arrival, age, and advancement of the forest is currently underway. Other questions could be answered here as well, such as the potential for the woodlands to advance north, or the success or inability of pine bark beetle to attack the pinyon. These unique resources attract further research, learning, and understanding of the natural environment, which is a key goal of this general management plan and part of the mission of the National Park Service.

Feasibility to Administer the Lands Added Through Boundary Adjustment

The recommended boundary adjustment described in alternatives C and D would be feasible for the National Park Service to manage and without substantially adding to the NPS or IDPR workload. The added acreage would create a logical block of land contiguous with the existing park boundary. Approximately 240 acres within the proposed boundary adjustment area are already being managed by Reserve staff under the jurisdiction of two R&PP leases, which contain the Smoky Mountain Campground and equestrian day-use area.

Administration of the additional acres by the National Park Service might reduce the amount of federal presence needed to manage and protect the land and critical natural and cultural resources. Activities that impact resources are occurring on BLM lands immediately surrounding the campground; however, BLM enforcement is often unable to respond in a timely manner or to address the level of use or conflict resolution. Reserve employees are currently on site daily but do not have the jurisdiction to prevent or mitigate the impacts. If the boundary were adjusted to include lands around the campground, Reserve staff would be able to observe and enforce protective regulations.

There are no known environmental hazards associated with either private or federal lands and appropriate site inspections and hazardous material surveys would be conducted prior to acquisition.

Protection Alternatives Considered

Private property within the adjusted alternative C and D boundary is subject to Cassia County land ordinances and is currently zoned multiple-use, with the exception of a strip along the entrance road designated as part of the Historical Preservation Zone. Historic land uses by private property owners are compatible with the Reserve concept. Public lands within the proposed boundary adjustment area are currently under the jurisdiction of the Bureau of Land Management. The GMP planning team considered continuing this jurisdiction but designating those lands as a monument/preserve, similar to the Craters of the Moon National Monument and Preserve. After consideration, it was determined that the parcel simply wasn't large enough to warrant the dual management approach.

Another option was to expand the IDPR R&PP lease to include the entire boundary expansion area, so that it could be managed consistently with the campground and other recreation facilities. This was less desirable on three accounts:

The National Park Service would still be restrained from consistently managing the pinyon woodland or sharing in the cost of providing needed recreational facilities.

Idaho Department of Parks and Recreation cannot achieve the resource management objectives alone, but can be an active partner with the National Park Service through the existing cooperative agreement.

The Bureau of Land Management would still need to dedicate resources to writing compliance reports and managing the lease, thus taxing that bureau even more.

The boundary adjustment in alternatives C and D would support the conversion of the R&PP lease to an R&PP patent to the state of Idaho.

Proposed Additions to the Park Boundary and Other Adjustments

Under the preferred alternative, no boundary adjustment is proposed. However, alternatives C and D both propose approximately 4,247 acres for inclusion within the boundaries of City of Rocks National Reserve. Congressional action would be required to authorize this change and authorize and appropriate the funds from the Land and Water Conservation Fund, which would be necessary to acquire interests in private lands from willing sellers. Two parcels of private lands would be included within the proposed boundary change, but retaining private ownership is consistent with the Reserve concept. Some land within the proposed boundary change is currently managed by the Twin Falls District (Burley Field Office) of the Bureau of Land Management. These lands could be administratively transferred to the National Park Service. The Idaho Department of Parks and Recreation R&PP leases could be administered by the National Park Service, or as outlined in a revised cooperative agreement, but it would be preferable to have the leased BLM lands become State of Idaho lands by an R&PP patent.

